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THE MANAGEMENT OF ACUTE APPENDICITIS. ARGUMENTS AND CONTROVERSIES.*

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It may seem ill-advised to choose for discussion before an audience like this a subject so trite as the management of acute appendicitis. For more than fifty years the profession and the general public have heard so much about appendicitis that wonder may be aroused as to what more can be said. However, those who read the current medical publications know that a great deal is still being said and that the views expressed are by no means always in agreement. The condition itself—acute appendicitis—is so common and so serious, and the public is so generally interested in it, that a statement of the opinions accepted by all surgeons is worth brief restatement. Of greater interest, naturally, is a discussion of those issues in which capable and experienced men differ. These differences of opinion and practice have been accentuated in the past few years. As has been said, wide variations of position on the proper handling of certain phases of acute appendicitis have been taken by writers and speakers on the subject. This has been forcibly impressed upon the present writer, who has the duty of examining young surgeons in various parts of the country. Views have been expressed by some of them in regard to actual patients that have contradicted his own views completely, yet in justice these men cannot be marked down or rejected because they could readily produce respectable authority for their position. Now, it is not generally important as to how an examiner in surgery grades the answers he receives, but it is important that substantial groups of surgeons handle certain frequently occurring and serious situations in diametrically opposite ways. It would be too much to say that one or the other group must be entirely wrong, but surely one or the other method must be better. It is my purpose to examine into these conflicts of opinion and to present my judgment of their relative merits. In so doing, of course, no slightest claim is made for infallibility or even for superior authority. Nor will any effort be made to report extensively the literature on these controversies. It is too vast for analysis without tremendous labor, which in the end would result in nothing but the balancing of massive statistics, impressions and opinions against each other. There would always be a Roland for each Oliver. It seems more interesting and more valuable to analyze the differences of opinion in the light of one man's own modest experience, and to give, for what it is worth, his judgment upon the issue.

To begin with, it may be well to state, especially for the benefit of any of the public that may be interested, that the matters in which there is general agreement far exceed in number and importance the particular and relatively far less numerous situations about which discussion exists. Those accepted views may be outlined briefly as follows.

Of first importnace is the fact that if every case of acute appendicitis were properly operated upon before inflammation extends beyond the appendix itself, there would be little danger and almost no fatality connected with the disease. All are agreed to this. Therefore, the major problem is to arouse the public and the profession to the necessity for prompt surgical consultation in all cases that *may be* acute appendicitis, and prompt operation if careful consideration leads to the probable diagnosis of this disease. In certain communities, notably Philadelphia, educational campaigns sponsored by the medical profession have resulted in notable improvement in the mortality rates. It may be well to emphasize

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that a probable diagnosis is justification for prompt operation. There are numerous conditions that may resemble appendicitis, and there is, of course, clear obligation to make as accurate a differential diagnosis as possible. Operation on mere suspicion without proper study is certainly indefensible. But where such study leads to the conclusion that the probable cause of the trouble is an acutely inflamed appendix, the next imperative step is the prompt removal of that organ.

All agree that the giving of cathartics, by the doctor or the family, is a very harmful practice. Numerous statistical studies on case histories show clearly the truth of this opinion. It is, therefore, our duty to preach the gospel of withholding cathartics, and indeed everything else by mouth, from patients with acute abdominal symptoms until the nature of the trouble has been determined. It will be difficult to convert many people to this doctrine, because purgation for digestive trouble seems an ingrained American habit, but persistence and example in time will accomplish much.

The operation itself should be carefully executed. It is a mistake to presume, as some do, that all cases are easy and simple to handle. I have heard it said that "Anybody can take out an appendix". Nothing could be more mistaken. I have also seen men in the very top ranks of surgery sweat and struggle a long while with a difficult appendix—and have felt sure that less able operators would have failed to remove the organ or have done serious damage in removing it.

The disputed situations in acute appendicitis do not arise in the early unruptured cases that we have been considering so far. They develop when for some reason, good or bad, operation has not been performed before the appendix has ruptured. It is in the delayed cases that danger is greatly increased and the mortality rises, and opinions differ greatly as to what to do about it. The very use of the term "delayed" brings up certain points of controversy. Some surgeons regard a case as delayed, depending upon the number of hours or days since onset. Others regard delayed cases as those in which rupture has occurred, irrespective of the time element. And there is a great deal of questioning as to whether one can tell with certainty that rupture has or has not taken place.

It may be well to discuss these issues a little further.

In England, many surgeons divide cases into early or late on a strict time basis, considering all those more than forty-eight hours old as in the late class and making a great difference in the methods by which the two groups of cases are treated. To the present writer this seems a quite unrealistic point of view. Pathological processes do not proceed like railroad time-tables. I have seen an appendix already gangrenous four hours after the first symptom was complained of, and, on the other hand, an acute unruptured appendix four days after onset. For me, at least, the time schedule of operating is meaningless.

That appendiceal rupture has taken place is by no means always easy to recognize. The classical description of a sudden cessation of previous intense pain, followed after an interval by recurrence of pain over a wider area, with increasing tenderness and rigidity, may be accepted as an indication of rupture. The trouble lies in the fact that this clear-cut picture is presented by a minority only of the cases that do rupture. The same difficulty is found in the attempts to recognize the extent of the peritoneal involvement that follows rupture. Terms such as "localized peritonitis", "spreading peritonitis", "diffuse peritonitis", "generalized peritonitis", are in frequent use. But these terms are descriptive of a pathological process, and thus exactness can only be determined at autopsy. Even the exploration permitted by any rationally conducted operation may not reveal whether peritonitis is "spreading" or really "general". It is all the more true that the clinical diagnosis of the extent of the lesion is very inaccurate. Even the recognition of appendiceal abscess is far from certain. A mass that is suspected of being an abscess may turn out to be omentum adherent about an unruptured appendix, or several other less common resembling conditions, and, on the other hand, a real abscess from rupture of a retro-caecal appendix may not be recognizable clinically at all. These uncertainties and impossibilities in the exact diagnosis of the extent of the lesion following appendiceal rupture are not being emphasized because they represent a novel idea. The reason for the emphasis on the uncertainty is because a number of surgeons are urging a difference in the treatment of cases in which appendiceal rupture and peritoneal involvement have occurred. Their point of view will be examined in a moment. The objection to be made here is that the whole basis of their

position rests upon the unwarranted assumption that the surgeon can, with reasonable accuracy, recognize the extent and nature of the actual pathological process.

The school of thought just referred to, which includes a number of excellent surgeons, reasons as follows. As long as the inflammatory process is limited to the appendix itself, its immediate removal is the logical and completely satisfactory treatment of the condition. But when rupture occurs, with soiling of the peritoneum, a new factor is introduced. The patient is much more seriously ill and much less fit to withstand surgical intervention. This intervention itself, by impairing the resistance of the peritoneum and mechanically distributing the invading organisms, may spread the infection further. The surgical trauma to the intestine may promote paralytic ileus, and the anesthetic may do the same thing. Therefore, it is wiser to treat such cases along the lines originally proposed by A. J. Ochsner, namely, deferred operation, nothing by mouth, strict bed-rest, ice bags to the abdomen, morphia, and fluids by infusion or by vein. The end hoped for is the spontaneous localization and walling off of the peritoneal infection, then overcoming of its virulence by the native resistance of the patient, and improvement of the patient's general condition. The result of this process is the formation of a well walled-off abscess, and its clinical evidence is the fall in temperature, pulse rate and leucocyte count toward normal, the cessation of pain, nausea and vomiting, the resumption of bowel movement, the localization of tenderness, rigidity and muscle spasm to a limited area, and often the development of a palpable mass—the abscess itself. Those who advocate this general plan of management are all careful to state that it must not be applied to the acute unruptured appendix, which is still to be removed as early as possible. They do not all agree as to just which cases are best treated by deferred operation. Some would operate promptly as long as the peritoneal infection is limited to the immediate vicinity of the appendix but not if it is "spreading" or "diffuse". Others would operate on a "spreading" but not on a "general" peritonitis. Most would operate after abscess formation has become well established, with drainage of the abscess and removal of the appendix, provided this can be done without breaking down the protective adhesions forming the wall of the abscess. If the latter danger is present, simple drainage is done and the patient advised to have the appendix removed later when all infection has subsided. Nearly all surgeons would agree to this handling of established abscesses, whether they have formed under conservative treatment or are present when the surgeon first sees the case, but even here there is not unanimity. My friend, Dr. E. P. Lehman,[1] of the University of Virginia, feels that the establishment of the abscess marks the end of the dangerous phase of the disease and that many such cases, under careful rest and conservative treatment, may become completely innocuous and may not require surgery at all. They are warned, however, that signs of recurrent trouble should lead to very prompt surgical advice and probable operation.

The writer has presented this theory of treatment of the ruptured appendix at some length and, it is hoped, with fairness, because he disagrees with it entirely. Undoubtedly, many cases will do well under it. Undoubtedly, the statistics presented from some clinics show an improvement since it has been introduced. Undoubtedly, certain individual surgeons, of exceptional judgment and experience in employing it selectively, have shown remarkable results. It is, however, true that other clinics that employ prompt operation in practically all cases, without regard to the assumed stage of peritoneal invasion, can show just as good results as the improved statistics of those who have gone over to the waiting plan. Individual surgeons, working in a different environment, perhaps, and operating promptly, present as good a record as those mentioned above who prefer to wait in this special class of cases. The statistics prove only that in general the author quoting them finds them confirming him in his own opinion. They cannot be used as a basis for relative comparison because too many other factors vary. The surgeon who receives many cases from considerable distances will be impressed by the fact that many of his "late" cases recover under a waiting policy, but it is fair to ask if these are not the hardy survivors with great native resistance, and whether he knows how many people in the same area died of acute appendicitis by waiting and who never saw a surgeon. On the other hand, the surgeon working in a large city, with a well-trained medical group and an intelligent section of the population, who operates early in all cases, may have little personal experience with the advanced, neglected cases. For these and other obvious reasons of inequality of conditions,

statistics seem to furnish an unreliable basis for the comparison of these two methods.

The writer prefers to challenge the "waiting" plan from the standpoint of its theory, supported by personal experience and the experience of a large institutional clinic with which he is associated. The first objection has been made already, namely the impossibility in many cases of recognizing exactly the extent of the lesion. To wait on an acute unruptured appendix in the mistaken belief that there is already a perforation and spreading peritonitis defeats the very purpose of the expectant plan of treatment, yet this may happen readily enough. The waiting plan seems to me fallacious, not only because of uncertainty of diagnosis but because it relies on nature to take care of the damage done by a ruptured appendix, and does not promptly remove the source of that damage, the leaking appendix itself. It is difficult for me to believe that a properly conducted operation is as harmful to the patient's chances of recovery as allowing continued infection to enter the peritoneal cavity from a perforated viscus. It may be true that ill-advised methods of operation do harm in such a situation but the principles to be followed have been enunciated many times. The incision should nearly always be of the McBurney type. No general exploring should be done; in fact, the least possible manipulation to remove the appendix is the ideal. A cigarette drain sheathed in very thin flexible rubber of the Penrose Type is placed against the lateral peritoneum downward toward the pelvis, or upward toward the lumbar fossa, or both if there is soiling in both directions. The wound is closed loosely with interrupted fine catgut sutures. To these operative measures are added the supportive general treatment upon which alone the "expectant" advocates rely—fluids, gastro-intestinal decompression by nasal tube, morphia, heat to the abdomen. The writer does not wish to give the impression that there is never a situation resulting from appendicitis in which delay of operation should not be advised. But he does feel that in these rare cases the reason for delay does not depend directly upon the extent nor nature of the local lesion in the appendix or the peritoneum. It depends upon the patient's general condition. If the patient is dehydrated from persistent vomiting, is suffering from loss of chlorides, has a marked paralytic ileus, a weak, thready pulse, failing blood pressure—in short is so gravely ill that he is in no shape to stand any surgical procedure—naturally waiting is necessary. If restorative treatment improves his ability to sustain operation, it should be undertaken without regard to any theoretical assumption that the peritoneal process has or has not become delimited. These statements are made, not to be dogmatic, but to outline clearly a personal program of handling acute appendicitis.

The greatest objection to the teaching of delay in certain complications of appendicitis is in its effect upon the general profession and the public. A few highly experienced surgeons, watching a patient in a hospital with every facility for constant study and instant surgical intervention, may satisfy themselves of the wisdom of expectant treatment in a limited group of appendicitis cases. They are usually scrupulously careful to teach and apply this method only in this limited group of cases. In spite of their best intentions, however, the effect of their teaching and example is to encourage the general practitioner and the layman to alter his views about the urgency of operation in acute appendicitis. A laborious campaign of education has produced some results in bringing appendix cases early to the surgeon. All agree that this is the most effective single agency in reducing the mortality of the disease. If now the word goes around that the well-known surgeon, Doctor X, sometimes waits on his cases until the severe symptoms subside, there is a very human tendency for general practitioner, Dr. Y, and patient, Mr. John Doe, to say to himself, "If waiting is the thing, why not wait at home, and save a lot of trouble and expense?" It is a little too much to expect either of these gentlemen to recognize the distinction between an acute gangrenous, but as yet unruptured appendix, on the one hand, and a ruptured appendix with spreading peritonitis, on the other. As was said above, it is a differentiation that the best surgeon cannot always make with certainty.

The plan of prompt operation in practically all cases has been practiced by the writer and most of his surgical friends in Baltimore for many years. It is also the method employed in the Johns Hopkins Hospital. Papers in the past giving some statistical studies have been published by Dr. J. M. T. Finney, Jr.,[2] and the present writer.[3] The most recent such study has been made by Dr. Edward S. Stafford and Dr. David H. Sprong[4] from the material of the Johns Hopkins Hospital. There were no deaths in 838 cases of acute appendicitis without perforation. This result is, of course, due in part to good fortune,

because although the mortality rate should be low, one would expect in such a large group of cases at least one or two of the unpreventable accidents that may attend any operation. In 479 cases with abscess or peritonitis, the mortality rate was 10 per cent. The writers consider that some of these deaths might have been prevented by more careful diagnosis and better treatment of post-operative complications. They point out, however, that even so these mortality rates are better than the average reported for the delayed or expectant treatment of perforative appendicitis, and feel justified in continuing to perform immediate operation in the treatment of appendicitis.

BIBLIOGRAPHY

1. Lehman, E. P., and Parker, Wm. H.: Treatment of Intraperitoneal Abscess Arising from Appendicitis. *Annals of Surgery,* 1938, Vol. 108, p. 833.
2. Finney, J. M. T., Jr.: Appendicitis; Some Observations Based on a Review of Three Thousand Nine Hundred Thirteen Operative Cases. *Surgery, Gynecology and Obstetrics,* February, 1933, Vol. LVI, pp. 360-365.
   Complications and Deaths Occurring in Appendicitis. *American Journal of Surgery,* June, 1933, Vol. XX, pp. 772-798.
3. Stone, H. B.: The Question of Mortality in Acute Appendicitis. Reprinted from *Virginia Medical Monthly,* September, 1931. (Read before the Richmond, Va., Academy of Medicine, March 24, 1931.)
4. Stafford, E. S., and Sprong, D. H.: Paper presented at 1940 meeting of American Medical Association.

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DISCUSSION

DR. ROBERT KING BUFORD, Charleston: Going over our records for the past 20 years we have gained certain impressions. Early in that period we employed the Murphy Drip. We believe its use resulted in diffusing many cases of localized peritonitis by increasing peristalsis. We no longer use proctoclysis. Instead we give all of our fluids intravenously or subcutaneously. The subject of drainage is very unstandardized. Years ago following prolonged drainage, we had more complications, more obstructions than we have had during the past fifteen years. During this latter period, our attitude has been that, if the peritoneum is intact, drainage is not indicated. Another point I would like to emphasize is the question of post-operative care. For several years now, in a case of peritonitis, when the patient returns to the room and sometimes before operation, the Levine tube is passed and we keep up continuous decompression by the Wangensteen method.

We do careful evaluation of blood chemistry, especially non-protein nitrogen and chlorides, and determine if the patient has any anemia. If we have overdone anything it has been in the giving of blood transfusions—and we feel that we have been well repaid.

Our series in a period of twenty years shows a total of 1,526 cases of acute appendicitis operated as emergency cases; 229 were perforated; sixty-four showed appendiceal abscesses. The majority of the abscess cases, thirty-two, were handled by the two-stage method, i. e., drainage of the abscess and appendectomy three or four months later. There was no mortality in that group. In ten cases where the abscess was not well walled off we were able to remove the appendix at the time of operation. The mortality in that group was 1.5 per cent. The mortality of the perforated cases was 4 per cent. The mortality of the total combined series was a little less than 1 per cent.

I am indebted to my associate, Dr. Bailey, for the statistics from one of our local hospitals. These figures represent the work of several surgeons. In 1939 there were 225 cases of acute appendicitis. There were thirteen abscesses, twenty-nine perforations, and twenty-seven cases of gangrene. Mortality was 1.4 per cent. There were 215 cases of chronic appendicitis in the same institution with no operative mortality.

DR. J. BOLLING JONES, Petersburg: When I first joined the Society a great many years ago, typhoid fever and appendicitis always provoked the most attention at our meetings. Science has eliminated typhoid fever but appendicitis will probably remain as long as mankind has an appendix.

It is universally admitted that early diagnosis and early operation give best results, but it is not always possible to make an early diagnosis. One of the most frequent causes of delay in diagnosis is the fact that the appendix does not always occupy the same position in the abdomen. On two occasions I have operated on infants with strangulated inguinal hernia with the head of the cecum and the appendix in the strangulated hernial sac on the left side. It is well known that the appendix may be down in the pelvis, in the region of the kidney, in the region up under the liver, or it may be stretched across the abdomen to the left. I believe that anomalous positions of the appendix are largely the cause or are certainly one of the elements of delay in arriving at correct diagnosis.

I still see a good many abscesses. They vary in location as does the appendix. When I encounter an abscess, it is my usual practice to drain. If an appendiceal abscess is in the pelvis I do it through a vaginal if it is a female, circle, the cervix, put in a pair of forceps, let out an enormous amount of pus, stick in a drain, and the patient is well before you know it. I can't see how it would be wise to go further and go back in the belly and remove such a bad appendix at that time, and I don't believe it would be wise to go across the belly and open that abscess primarily. In dealing with a small abscess, of course the appendix is removed. However, even in small abscesses, I have been able to drain extraperitoneally, following down around behind the head of the cecum and breaking into it and removing the pus, and the appendix is removed later.

THE TREATMENT OF SINUSITIS.*

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Three hundred million colds a year! This is the estimated number for the United States. When it is realized that every cold is a potential sinus involvement and that chronic sinusitis probably causes more ill-health than any other disease, it is obvious that every physician should be thoroughly familiar with the pathological changes which accompany sinusitis. The general physician is the first to be consulted; he should therefore, be in a position to give authoritative advice. Yet, in the past, the possibility of allergic influence has not always been sufficiently considered and comparatively little has been known about the physiology of the nose, the pathology of sinus infection, and the effect of constitutional conditions upon the function of the nose and sinuses.

ANATOMY AND PHYSIOLOGY

The nose is an extremely complicated anatomical structure. No two nasal chambers are exactly alike; no two can be expected to act alike, even in the same individual. Nor do any two patients respond identically, either constitutionally or locally, to nasal therapy. The function of the nose is so controlled through the nervous system that any abnormality in any portion of the body, from the skin to the heart, may have a decided bearing on it.

Small wonder, then, that there is considerable confusion on the subject in the mind of the layman, the general practitioner and even the rhinologist. I believe Ballance[1] has well stated the case when he says "Once the pathology is understood, differences of opinion as to therapy should disappear." To further this better understanding, let us briefly review some of the high lights in the anatomy and physiology of the nose.

The nose consists of two chambers, separated by the septum and surrounded by cavities connected with it by very small openings, called ostia. There are three turbinate bodies situated one above the other in the lateral wall of each chamber, dividing this wall into three compartments called respectively the superior, middle and inferior meati.

The lacrimal duct empties into the inferior meatus (below the inferior turbinate), hence the futility of treating nasal conditions with drops put into the eye. Into the middle meatus (below the middle turbinate) empty most of the other sinuses: i.e. the antra, frontals and anterior ethmoids; therefore the anatomy of the middle meatus is the most important insofar as sinus involvement is concerned. Drainage from all sinuses depends principally on ciliary action—helped in most instances by gravity. The frontal sinus drains, *down-hill,* from its lowest point by a long, often tortuous passage, through ethmoids into the middle meatus. The anterior ethmoids drain, *down-hill,* into the middle meatus at nearly the same point as the frontal and antrum. The antra empty into the middle meatus through one or more openings situated in the uppermost part of the antral cavity, necessitating *up-hill* drainage. Here any interference with the action of the cilia renders drainage impossible.

The posterior ethmoids empty into the superior meatus (below the superior turbinate); while the sphenoid empties into the space above and posterior to the superior turbinate. The sphenoid is drained by an opening situated high on its anterior surface, necessitating *up-hill* drainage; here, too, the action of the cilia is of prime importance.

It is thus evident that all the sinuses drain downhill excepting the antrum and sphenoid. The antrum is the most common site of infection, the sphenoid the rarest. The probable explanation is that the anatomical structures surrounding the ostia of the antra are far more liable to be deformed, thus obstructing the ostia and impeding ciliary action. For this reason the antrum is the sinus most likely to require aid to drainage.

A large part of the drainage from the sphenoids and posterior ethmoids goes down the throat. Most of the other sinuses, by reason of ciliary action, would naturally drain down the throat also, but the action of blowing the nose directs a certain amount anteriorly. The postnasal and the lymphatic drainage from an infected sinus causes the tracheal cough so characteristic of sinus infection.

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If the formation of the nose were perfect, sinus infection would occur only as a result of swimming, ill-advised local applications or allergy. Since such perfection is rarely attained, we shall find that about 85 per cent of all X-rays of the nasal sinuses show some degree of involvement. A septal ridge or spur which projects into the middle meatus, especially in the anterior part, crowding the middle turbinate against the outer wall and so interfering with the function of the ostia of the antrum and other sinuses, is almost certain to result in poor drainage from these sinuses, with consequent chronic infection. When there is obstruction of one side of the nose by a deviated septum, there will be a compensating enlargement of the turbinate on the opposite side as a result of improper aeration. A middle turbinate which has become greatly enlarged as a result of poor aeration, or of allergic reaction, will most certainly obstruct the ostia by its size alone, and sooner or later infection will occur. In such a case, it is necessary either to relieve the underlying allergy, improve air circulation or create better drainage for the sinuses involved.

When the nasal ostia are unobstructed, inspiration causes a negative pressure in the nose and sinuses; expiration, a positive pressure. It has been demonstrated that when, because of obstruction of the ostia, pressure in the nose and antra differs, secretion will generally be found in the antra. Insufficient ventilation of the nose, with the resultant mouth-breathing, also causes poor drainage from the sinuses. Experimentally, it has been shown that dyes placed in an acutely inflamed sinus, of which the ostia are completely blocked, will appear in the urine within fifteen minutes. This will give some idea of the absorbing power of the mucous membrane in inflamed sinuses when the ostia are blocked by acute swelling or chronic thickening. It also explains why the sinus patient seems more ill than one with an ordinary cold.

If the function of the nose is unimpaired, a "cold" is self-limited and will disappear in a few days. If due to an allergic condition, it will clear up in one or two days unless there is a superimposed infection or too much medication to which the patient is sensitive. A cold which persists longer than a week, with continued congestion of one or both nostrils, excessive secretion, cough or recurring temperature, is strongly suggestive of sinus involvement. At the beginning of a cold, there is an acute congestion of all nasal membranes, the ostia swell and drainage becomes difficult. At this point anything that can be done to improve the general resistance and open the nasal ostia will facilitate prompt recovery. When, in spite of all efforts, the ostia do not open, suppuration follows. If this stage is prolonged, there is infiltration of the connective tissue and permanent hyperplasia of the lining membrane. Unless relief is now given, degeneration of the mucosa, together with polypoid and cystic formation occurs. This condition can be cured only by removal of the diseased tissue; if this is not done, the patient must tolerate the symptoms of chronic sinusitis.

The cilia constitute the greatest protection which the nose possesses. The entire lining membrane of nose and sinuses is supplied with these hair-like processes which wave toward the ostia and the nasopharynx. Over the cilia is a tenacious layer of mucus which tends to catch foreign particles and invading bacteria and is moved onward by the cilia. The introduction of anything into the nose which interferes with the ciliary action of the mucous coat, impairs the natural protection supplied by the mucous membrane. For this reason the habit of spraying the nose with antiseptics is obviously not to be recommended. Unobstructed ostia and free ciliary action are all-important and must be maintained or re-established at all times. In acute infections swelling of the membrane in the ostia halts normal drainage; hence anything which tends to shrink this membrane is an advantage. Our choice of drugs—of which we shall speak later—must be confined to those which do not interfere with ciliary action. Thick pus retards or stops the action of the cilia, and should be evacuated by means of lavage. Since ciliary action ceases at temperatures below 53° F. and above 109° F., the use of too hot or too cold solutions or vapors is contra-indicated.

The turbinates have the most abundant blood supply of any part of the nose; they have much elastic and smooth muscle fibre and large cavernous sinuses, giving them the characteristics of erectile tissue and rendering them particularly responsive to all types of sympathetic nervous system reactions, to inflammation or allergies, to thermal, chemical (either local or general), emotional and constitutional changes. Their function is to warm and moisten the inspired air. Because this function is maintained by the co-ordinated action of both sensory and involuntary nerves, any constitutional dyscrasia may cause func-

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tional nasal changes and local symptoms which may simulate sinus disease. Heetderks[2] has shown that "under certain conditions, in normal individuals, the excitation of the function of regulating temperature and moisture and of filtering the inspired air, may produce symptoms of which the patient may complain. Such symptoms as nasal obstruction in hot dry rooms, a watery discharge in cold weather, and, during adolescence, the dropping back into the throat of secretions, and the obstruction of the nose on the dependent side are physiological responses which need not necessarily be the result of pathology in the nose." It is well to look for causes other than nasal, when the patient complains of a postnasal discharge which is not excessive, especially where there is no pronounced tracheal cough. Fifty per cent of such cases are probably allergic. Other possible causes are endocrine imbalance, intestinal stasis, anemia, syphilis and diabetes. When the postnasal discharge is abundant and accompanied by the characteristic tracheal cough, the cause is usually sinus infection.

ANTRA

My personal experience has led me to believe that the antrum is the keystone to most nasal pathology and the best point of attack. This assertion will not go unchallenged, as many believe the ethmoids to be the chief offenders. In support of my thesis, I present the following statistics obtained from a cross section of one thousand case histories taken from my private practice. These histories cover a twenty-five year period, limited to ear, nose and throat work, and number approximately twenty-thousand records. Of the thousand cases studied 474, or 47 per cent, gave no history of nasal disturbance, the remaining 526, or 53 per cent, showed nasal involvement in the following proportions:

191, or 36 per cent, were due to causes other than sinus infection.

335, or 64 per cent, showed sinus infection.

(The distribution of these 335 cases is shown in Table "B".)

From these statistics the importance of the antra as retainers of nasal infection appears self-evident. Granting this, it is also evident that if acute antral infection is prevented from becoming chronic there will be far less involvement of the other sinuses through extension of infection. To my mind, chronic involvement of the ethmoids alone is due to allergy. The above figures show how rarely the ethmoids are involved without accompanying involvement of the antra and *vice versa*. In such combined infections, acute or chronic, treatment of the antra will do much to clear up the ethmoids but treatment of the ethmoids will never cure the antra.

ALLERGY

In any nasal syndrome allergy must first be considered as a possible cause. Hansel[3] gives statistics indicating that in about one-third of the cases seen by the rhinologist, the symptoms are primarily allergic. Such cases can usually be determined by a careful preliminary history, but negative skin tests cannot always be accepted as ruling out any sensitivity. When allergy is the underlying but undis-

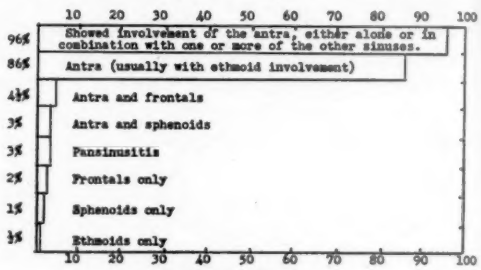
10 20 30 40 50 60 70 80 90 100
96% Showed involvement of the antra, either alone or in combination with one or more of the other sinuses.
86% Antra (usually with ethmoid involvement)
4½% Antra and frontals
3% Antra and sphenoids
3% Pansinusitis
2% Frontals only
1% Sphenoids only
½% Ethmoids only
10 20 30 40 50 60 70 80 90 100

TABLE "B"
Chart Showing The Incidence of the Involvement of the Various Sinuses.

covered cause, the results of any and all nasal procedure are likely to be unsatisfactory. Allergy can simulate every nasal symptom of which a patient may complain. He may have what he calls a "cold"; although a careful history will reveal that these "colds" come suddenly, with sneezing and are of but one or two days' duration; or he may have a "chronic cold" which strongly suggests sinusitis but may actually be allergic. Any medication in a nose of this type is likely to increase the symptoms. Operations are contra-indicated unless the allergy is also treated; many nasal operations would prove unnecessary if the underlying allergy were treated first. On the other hand, the perennial types of allergy may bring about permanent changes in nasal membranes rendering them more susceptible to infection; here operation for the cure of infection should be undertaken. In cases where treatment of the allergy, *per se*, fails to give adequate relief, the removal of hypertrophied tissue will help, by improving drainage and ventilation.

Because of the anatomy of the nasal chambers,

Fig. I.—This shows a case of chronic pansinusitis.

Fig. II.—Same patient as Fig. I; 15 months after double radical operation on the antra showing the beneficial effects on the other sinuses.

treatment of the antra will almost always tend to clear up any other sinuses simultaneously involved. In the acute stage, shrinkage of the middle meatus is advisable; this can be done by means of a pledget of cotton moistened with a mild cocaine solution, and the use of ephedrin 1 per cent in normal saline in the form of drops. As the acute stage passes and the secretions become thicker it is advisable to aid drainage by lavage of any obstructed sinus. Such treatment can best be accomplished, with the minimum of trauma, by passing a canula through the normal or accessory opening. The question of the number and frequency of irrigations is an important one and requires considerable judgment and experience. The character of the secretion obtained, plus the reaction, general and local, to such irrigation, are the determining factors. For some patients daily irrigations are preferable; for others every two or

Fig. III.—Shows acute pansinusitis which was cured in three weeks by lavage through the normal openings; 3iv of thick pus was found in each antrum.

Fig. IV.—Same patient as Fig. III; two months later showing how the antra cleared.

three days is sufficient; while still others require a longer interval. In the chronic stage of pansinusitis, operations on the antra will do more to clear up the other sinuses than any other procedure.

MEDICATION

A wide variety of drugs has been tried in nasal treatment and experience has taught some very important lessons in this field. Let us consider some of the drugs commonly used in the light of present-day knowledge of their action.

Ephedrin (1 per cent) in normal saline interferes as little as any known substance with the natural function of the mucous membrane. It is excellent to relieve congestion and to assist sinus drainage. It should be used, without preservatives of any kind, in the form of drops (one-half inch of the solution in an eye dropper) placed in each nostril with the head well back. It should not be used too frequently, as some patients develop an intolerance for this drug. Increased congestion following its use indicates either the existence of such an intolerance or of a sinus which needs attention.

Benzedrine Inhalant will give considerable temporary relief but used too frequently will produce bad constitutional reactions. It has, however, no effect on the cilia.

Cocaine in a Weak Solution (not over 5 per cent) has no deleterious effect upon the cilia. In the majority of cases its use by direct application, alone or in combination with ephedrin, is most effective in shrinking the ostia. However, inquiry should always be made regarding the patient's reaction following its use, since cocaine may cause severe headache and depression and some people have a decided idiosyncrasy for it. Whenever a patient reports headache or malaise following treatment, the cocaine is sure to be the cause. In all such cases, a substitute, such as pantocaine (2 per cent) and ephedrin (1 per cent) should be used.

Normal Salt Solution: This does not interfere with ciliary action but the habit of daily irrigation with this solution will in time produce definite changes in the mucous membrane. It is also well to note that after nasal operation dry treatment is preferable to wet, as moisture causes edema of the new tissue.

Argyrol and Neosilvol used frequently or over an extended period will produce argyria. Patients often exhibit the characteristic silvery, dusky skin, black turbinates and nasopharynx, black streaks down the pharynx (I have even seen the interior of the larynx black) following the prolonged use of "argyrol". The appearance of argyria may possibly be delayed until months after the drug is discontinued but once it appears it is permanent. Since argyrol has no bactericidal properties when used in a pack, any beneficial result obtained is due to osmosis. In other words, the patient's nose is washed in its own secretions and shrinkage is obtained by drawing fluids out of the tissue. Hypertonic saline solution would

Figs. V and VI.—Same patient; showing how the ethmoids and frontals cleared after treating the antra.

accomplish the same result without danger of argyria.

Petrolatum does not interfere with ciliary action but it lies on the mucous coat and by its additional weight slows the progress of this coat toward the nasopharynx. This is true of any oily solution. It has been shown that drugs dissolved in oil do not penetrate the mucous coat to reach the epithelium; phenol and iodin are so firmly held in oil that they are rendered inert. Mineral oils when used in the nose have been known to produce lipoid pneumonia, especially in children; vegetable oils are less harmful. As a matter of fact, oil should be used only in chronic crusting conditions where the cilia are not functioning.

The constant use of any of the popular *Sprays* for the nose, including menthol, eucalyptol, camphor, petrolatum, will produce definite changes throughout all layers of the mucosa and is not to be recommended.

CHEMOTHERAPY

Recently chemotherapy has entered the field of nasal therapy but so far there is very little to be found in the literature on the subject of its use in sinus infection. My own experience has been as follows:

Case A: This patient had a severe attack of sinusitis of one week's duration; temperature 104°; stiff neck; high blood count. Following the administration of sulfanilamide, all symptoms disappeared in three days' time.

Case B: Mrs. L. S. had had infection in the nose for three weeks. X-rays taken May 10, showed the left antrum very dense, the left frontal cloudy, the left sphenoid questionable; there was also thickened membrane in the right antrum. On this date, I washed five or six drams of thick green pus, partly broken down, from the left antrum. Pus was also seen coming from the left frontal and over the middle turbinate. Culture from the initial washing showed pure streptococcus hemolyticus. Antral irrigation on the 13th, three days later, showed no improvement. She was now given sulfathiazole, grams one, every four hours. Within twenty-four hours, there was no pus to be seen in any part of the nose. Two days later there were two drams of coagulated pus in the antral irrigation. The drug was stopped five days later. On May 23, ten days after the institution of the drug, the patient was symptom-free; there was no discharge in any part of the nose and the left antrum transilluminated very clearly. X-rays taken May 28, fifteen days after the drug had been started, showed no cloudiness and only a small amount of thickening in the walls of both antra.

Figs. VII and VIII.—Same patient; showing how the sphenoids cleared after treatment of the antra.

Case C: Mrs. L. This was a case of marked pansinusitis: the acute attack was of four days' duration. On May 27, there was pus everywhere in the nose, especially over both middle turbinates and in the middle meati. Three drams of pus were irrigated from either antrum. Culture showed streptococcus viridans, staphylococcus hemolyticus and staphylococcus aureus. This patient was put on sulfathiazole on June 1; two days later, there was practically no nasal discharge.

Case D: Mrs. P. was first seen May 28, at which time she gave a history of a "cold" for the past six weeks. X-rays showed the right antrum and ethmoids very cloudy. Irrigation of the right antrum produced three drams of thick green pus; there was considerable pus in the middle meatus following antral lavage. On June 2, the patient was put on sulfathiazole grams one, every four hours, day and night; on June 5, three days later, there was no pus in the nose and the patient felt fully recovered.

Case E: Mrs. L. T. when first seen, March 8, had had a "cold" for two weeks. There was pain over the frontals and soreness over both antra. Several drams of thick pus were irrigated from both antra; pus also issued from both frontals and the sphenoid area. X-rays showed a pansinusitis. In this case the right antrum was irrigated a total of ten times, clearing up in twelve days; the left antrum required eleven irrigations over a period of twenty-one days before it was clear. X-rays taken May 7, showed all the sinuses clear. In this instance both antra cleared up entirely by the aid of antral lavage —and without sulfathiazole. However, the period between the first examination and the final cure was longer than in those cases where the drug was used in combination with irrigation.

I have used chemotherapy on very severe infections which seemed to be getting out of control and the result, as evidenced by the foregoing examples, has been miraculous. I, personally, have not seen any flare-ups in the treatment of sinusitis following the discontinuation of the drug, such as frequently occur in mastoiditis. However, at the recent American Medican Association meeting in New York City, Dr. Shambaugh reported two cases in which chemotherapy was used, which apparently recovered yet later developed meningitis and died. To my mind, this report constitutes a warning rather than a contraindication to the use of the drug. I have also tried chemotherapy on cases of a chronic nature, with thick pus in the antral washings and thickened membrane in the sinuses; in these cases I have had very negative results. Apparently the drug works best in sinusitis, when in the presence of a fulminating infection. According to Dr. Shambaugh's report, it may have a masking effect, just as in mastoiditis, and will therefore need careful watching even after the patient is clinically well. The best method of checking on this masking effect is by means of X-rays. I have seen patients, clinically recovered from mastoiditis, whose X-rays showed progress in bone destruction. It is safer, in the presence of an undrained focus of infections, not to rely too much on chemotherapy alone.

A general rule to follow in the administration of the drug is that when there is no response to chemotherapy in seventy-two hours if properly given some additional help must be obtained. One of the apparent causes for failure of chemotherapy, in such cases, is lack of development of antibodies on the part of the host. However, when indicated, antibody determination can be made. The administration of the drug may be stopped or delayed for a few days, to allow time for the formation of antibodies but this will not be found as satisfactory as the use of sera, vaccines and immunotransfusions. Any one of these or a combination may be sufficient to insure the successful increase of antibodies and therefore a better response to the drug. (On this point, I wish to call your attention to an article by Champ Lyons which will be published shortly.)

Of the various forms of the drug in present use, *sulfanilamide* appears to be specific for the streptococcus hemolyticus. *Sulfapyridine* has a broader usefulness; it is efficacious in pneumococcic and in staphylococcic infections as well as in streptococcic. It may produce toxic symptoms which are often severe, sometimes simulating meningitis so closely as to be alarming when it is used in the therapy of nose and ear infections. It should, despite this, be used in true meningitis. *Sulfathiazole,* although it frequently causes rashes, seems to be less generally toxic; it has an excellent effect on the pneumococci, streptococci and staphylococci, but it is not absorbed into the spinal fluid, hence should not be used in meningitis.

The introduction of the sulfanilamide directly into the sinuses is still in the experimental stage.

Another remedy which gives promise of great helpfulness is heparin. Heparin has already proved use-

ful in cases of thrombophlebitis or thrombosis. It should be given in meningitis, preferably after operation, when the response to chemotherapy is not satisfactory. When given prior to operation, bleeding from the wound may be severe.

X-ray Treatment of sinusitis is still debatable; some men claim excellent results in the acute stages of infections.

Diathermy is reported to cure when used twice a week for a month, but I have seen it increase the pain in acute frontal sinusitis.

Many other treatments have been advocated for use daily, or twice weekly, with the claim that cases so treated recover in a month's time. One cannot help echoing Hoople's question whether "these treatments do not prolong the condition to make it last so long."[4]

In this paper I have tried to give to the general practitioner some of the basic anatomy and physiology of the nose and nasal sinuses, together with a brief resume of present-day therapy, in the hope that a better knowledge on these points may lessen the confusion and misunderstanding on the part of both laymen and physicians in regard to the treatment of the nasal sinuses.

BIBLIOGRAPHY

1. Ballance, C. A.: Essays on the Surgery of the Temporal Bone. Macmillan Co., London, 2:426, 1919.
2. Heetderks, D. R.: Reaction of Normal Nasal Mucous Membrane. *Am. J. M. Sc.*, 174:231, 1927.
3. Hansel, F. K.: Allergy of the Nose and Paranasal Sinuses: A Monograph on the Subject of Allergy as Related to Otolaryngology. The C. V. Mosby Co., St. Louis, 1936.
4. Hoople, Gordon D.: Non-Surgical Treatment of Diseases of the Nose and Pharynx. *Annals of Otology, Rhinology and Laryngology,* Vol. 48, No. 1, page 73, March, 1939.

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DISCUSSION

DR. F. H. MCGOVERN, Danville: Conservatism in otolaryngology is due first to the lack of success in many cases undergoing indiscriminate sinus surgery; secondly to increased interest in consideration of the fundamental precepts of nasal physiology; and thirdly to the attention paid nasal allergy.

I do not mean to condemn radical sinus surgery. In properly selected cases, it is conservative to perform complete operations; a well-performed operative procedure may be the quick and safe way to recovery.

In spite of tremendous advances, the problems of nasal allergy remain unsolved; few cases indeed are cured by allergic methods alone.

I can only add to Dr. Bowers' discussion of Sinus Therapy the success we have found in the postural instillations of isotonic aqueous solutions using the displacement principle of Proetz and the lateral "head low" position of Parkinson. Despite contrary opinion, the Dowling argyrol pack continues to bring considerable comfort and relief in certain phases of purulent nasal and sinus infections. Infrared radiations, especially in acute frontal sinusitis, and foreign protein injections have a place in the therapeutic armamentarium.

The otolaryngologist can certainly relearn from the general practitioner constitutional treatment of the acute sinus infection—rest, elimination, heat, and diet—and reserve the specialized methods for the unresolved infections. In chronic infections the otolaryngologist should also think in terms of general body function, with particular reference to dietary and endocrine abnormalities; the help of the internist in this respect is exceedingly valuable.

I can agree whole-heartedly in the statement that the antrum is the keystone of sinus therapy, but disagree in the statement that chronic ethmoid infection is largely allergic.

The indiscriminate use of argyrol drops and nasal irrigations is both unsafe and unphysiological. It is to be remembered that a cold that does not get well in a reasonable length of time is a sinus infection, and chronic sinus infection is the result of inadequate and improper care of the acute infection. The patient with frequent colds of short duration is very often allergic.

DR. WM. F. BECKNER, Huntington: I am appreciative of the privilege of discussing Dr. Bowers' paper. I have nothing to add but would like to stress a few points.

In diagnosis the first and most important step is a thorough, carefully taken history and in this connection I would like to mention that many cases consult us complaining of sinus disease, whose real disability is maladjustment to the cares and responsibilities of life. As Dr. Alvarez emphasized, we must treat individuals as well as diseases. After the diagnosis of sinus disease is established, the patient should be warned about the probability of infecting the rest of the household. This is especially important in the case of the woman with several children. In the past I have seen many cases treated in which proper attention had not been given to the actual pathology present, the body's defense mechanism, and the patient's emotional constitution. It is also important if we are to get the best results from modern chemotherapy, that we make cultures from the nose. Many cases of so-called sinus disease are really manifestations of allergy.

Since nasal sinus infection is nearly always secondary to an acute cold, the proper place to begin the attack is against the cold. Instruct your patient that a cold is a potential sinus infection, and make him realize that an individual with a cold is sick and should be in bed. If patients would follow this advice, the incidence of nasal sinus infection could be materially reduced. The red hot nose should be treated with respect and handled

gently. To facilitate ventilation and drainage, I like to use ½ of 1 per cent ephedrine occasionally combined with ¼ or ½ per cent of cocaine and normal saline, gently instilled into the nostril, at slightly above body temperature.

Instruct the patient how to blow the nose. Have him take his handkerchief and hold it not up against the nostril—you show him how. How many people grab the end of the nostril and blow and force infection over into the sinuses. Have the nostrils free. If they must touch the nose, touch one nostril at a time and blow gently. Instruct them never to blow the nose if they find the nostril is blocked. A great many cases of nasal sinus disease occur because of this method of grabbing the end of the nose and blowing it and forcing the infection back into the sinuses.

Keep the room warm and at an even temperature, and the air moist. Do not purge the patient, but see that elimination is adequate. Give sedatives as needed.

X-ray is in the experimental stage in the treatment of sinuses and should not be used by the amateur, but only by a trained roentgenologist working with the rhinologist, and then only when the pathology has been carefully studied.

DR. WESLEY C. BOWERS, closing: Somebody has asked me to mention the use of argyrol packs. I am afraid I cannot say very much in favor of argyrol. I see so much argyria that I want to emphasize the danger of it. Personally, I prefer to shrink the nose with a mild solution of cocaine in the middle meatus.

I have enjoyed appearing before you and wish to thank Dr. McGovern and Dr. Beckner for their discussions.

DEGENERATIVE NEUROPSYCHIATRIC CONDITIONS DUE TO THE AGEING PROCESS.*

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It is proposed herewith to deal briefly and in general with some of the problems associated with the degenerative neuropsychiatric conditions due to the ageing process. Until recently there has been a great neglect of the problems of ageing, but at present they are a subject of growing interest and concern. The problems are primarily biological, but practically they are met and must be solved especially in medicine, in neuropsychiatry and in psychology. The problems raised by the ageing process even have great social and political implications and importance. In order to adequately and intelligently understand and deal with the problems of the ageing process, their broad biological and social backgrounds must be sketched.

It is popularly assumed that there is some sort of a change in a person around the age of forty—some diminution of sexual and generative capacities, some lessening of physical and mental vigor. These popular impressions and assumptions are vague and ill-defined. They are as apt to be as partially erroneous as they are to be partially correct. Only recently has there been any organized and scientific attack on the biological and medical problems associated with the ageing process, and also the socio-economic and political problems entailed. Circumstances and events have forced upon us the realization that these problems are very numerous and very important and that they need scientific elucidation and clarification.

In a discussion of ageing there is a great confusion as to the classification or grouping of people according to age and as to the terms applied. It is simple to group people chronologically as to year or decade. But there are such differences in people, such individual variations, such a lack of coincidence of chronological age and physical and mental state, that it is necessary for biological and medical purposes and studies to find some other groupings, such as to period of life or as to physiological epochs. Even though transitional stages and individual differences prevent precision, it is helpful and practical to group people according to such periods of life as infancy, childhood, adolescence, maturity and senescence. But there is a great lack of agreement, especially as to maturity and senescence. When does maturity (or middle age) begin and end? When does ageing begin and when is a person aged?

Perhaps some biological considerations will help us. Physical maturity begins when growth ceases, sometime in the early twenties or in the third decade of life. The most accurate and scientific determination of this is by the X-ray findings of the final joining of all the epiphyses with all the diaphyses of the bones in the so-called "osseous age" of the individual. This occurs around the age of twenty-five, and may figurately be referred to as the crest of

*Presented before the University of Virginia Medical Society, April 1, 1940.

physical life, with a preceding building-up or anabolic side and a succeeding decline or catabolic side.

Physical and mental growth and development and physical and mental involution and deterioration are associated, but do not run exactly parallel. The mind comes to maturity around the age of sixteen. The organization of the mind under the influence of experience can continue so long after physical decline that to all intents and purposes it is possible to say that the mind continues to mature and to grow and to develop long after physical decline starts.

Returning to the physical, there are biological evidences that when physical growth stops, physical decline or decay begins. However, this is so imperceptible for some time and accompanied by so much replacement and maintenance that it is not noticed. For a period of some years most people are in a state of physical maturity unassociated by themselves or by others with any thought of decline or decay or deterioration.

But around the age of forty it becomes apparent to a person and/or to others that he cannot do as much as he could formerly, that he cannot undertake or sustain or execute as much physical or mental work or activities as formerly.

Although there are exceptions and great individual differences, medically we have come to consider those persons as old or aged or, more technically, senile, who are around sixty-five years of age or older. To call all mature people in the forty-year or so period between the ages of twenty-five and sixty-five years as middle-aged is too vague for our purposes, and even to divide this into early and late middle age is not exact or workable enough for us.

We must have a term for the period from around the age of forty to around the age of sixty-five. In some ways we are justified in using the term "involutional" although this term involves certain meanings that may cause confusion. In neuropsychiatric literature the term "pre-senile" sometimes refers to the age grouping from around fifty to around sixty-five, but often enough it refers to ages between from around forty to around sixty-five that this term will be used hereafter in this connection. The term "ageing" will also be used in reference to the forty to sixty-five-year-old age group synonymously with pre-senile. The terms "aged" or "senile" will be used to refer to those over the age of sixty-five.

POPULATION STRUCTURE AS TO AGE

At the present time we are faced with population problems that have never occurred before. We not only encounter a vast increase in population, but also new and disturbing age groupings of the population.

At present in this country about one-third of the population is over forty years of age, with a distinct trend of the population to have an increasing proportion of people in the older age groups. At the present rate, by 1980 there will be double the present number of people who are over sixty-five years of age, and the prospects are that nearly one-half of the population will be over forty and one-third over fifty years of age. This means more older people and, actually and proportionately, fewer younger people. This tends toward a stabilized society, the establishment of which can be looked forward to in a few decades if the present trends keep up. This holds vast social and economic and political implications and reverberations, as well as medical ones.

Education is affected. There will be fewer children to educate. (This has already become apparent in the primary grades in some school systems.) Industry is concerned. Hitherto American industry has been more or less against the employment of a man over forty. From now on, because of social pressure, it may be more forced to do so. Incidentally, it is hoped that a scientific study of the problems of ageing from every angle will clarify the place of the ageing and the aged in society in general and in industry in particular, thereby correcting some present misapprehensions and injustices. The movements for old age relief and security reflect political repercussions of the problems of the ageing.

Medicine has a double obligation and stake in the problems of ageing. It is called upon to clarify and to elucidate the problems and to throw some scientific light upon them. It has the obligation and duty of caring for the ageing and aged individually and of helping to provide the plans and methods of doing so collectively. There is a great practical aspect to the problems for the medical man. Because of the increased morbidity and mortality after the age of forty, many, and sometimes the majority, of a physician's patients are over this age. Hitherto medicine has made no serious effort to study and to treat the problems peculiar to ageing and to the aged.

Studies and investigations in biology and in medicine and in all their branches are urgently indicated to find the solutions and the practical applications

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that are needed. At the same time, these studies promise to fully repay biology and medicine for all the time and effort placed upon them. They will add to our theoretical and practical knowledge.

A great store of biological information has been gained by a study of growth and development. It is reasonable to presume that about as much can be learned from a study of decline and involution. A great deal of psychological knowledge has been gained from studies of the growth and development of the mind. There are indications that just as much can be learned from the study of the decline and the deterioration of the mind that go along with the ageing process. This is practically an ignored and untouched field of psychological investigation.

SPAN OF LIFE AND AVERAGE LENGTH OF LIFE

There is a human desire to live a long time and to avoid much thought about involution and senescence and final dissolution.

Human beings should not be so resentful about their span of life; in fact, they may regard themselves as fortunate in comparison with the other animals. Relatively, humans have a great span of life. Man is one of the very few mammals, in fact, one of the very few animals, that live beyond fifty years of age. The only other mammals known to exceed fifty years of age are the Asiatic elephant and the horse—and the latter very rarely does so. It is said that with few exceptions among mammals, birds, reptiles, and perhaps fishes, fifty years is probably the limit of vertebrate life, and the span of life of most all vertebrates is much less than this.

Very few primitive people, past or present, lived beyond fifty years. Up until this century even a civilized man could scarcely expect to live beyond fifty since so few did so.

As is well known, we have increased the expectancy of life so that a baby born these days can expect to live to be about sixty years old. In the popular mind and in popular usage there is a great confusion between the terms "life span" and "life expectancy" or the mean average length of life, although these are two altogether different things.

According to Dublin, the "life span" properly conceived is the limit beyond which human life does not extend even in the most favorable circumstances, and this, again according to Dublin, is about one hundred years, although exceptionally a very few people can live a few years (five or ten) beyond one hundred. The tales of those living much beyond this are unauthenticated.

Further, according to Dublin in summary of his excellent chapter on "Longevity in Retrospect and Prospect" in the book *Problems of Ageing* (edited by E. V. Cowdry):

"By some inexorable law, still to be discovered and clarified, nature has allotted to man a life span of about one hundred years. But very few lives complete this span. Some are so malformed at the beginning of their existence that they cannot continue to live; others inherit limitations on account of constitutional weaknesses. The great majority of newly created lives, which are prepared to live through an existence that terminates only by physical degeneration, are constantly exposed to adverse influences in their environment that threaten either to destroy their existence or to accelerate the degenerative processes. It is within the powers of man, with his natural gift for controlling the forces of his environment, to mitigate or remove these adverse influences. The individual may accomplish much for himself in this direction by accommodating his routine so as to follow sound rules of personal hygiene and by showing an intelligent interest in current public health activities. Acting collectively with his fellow-men either through governmental or private bodies, he has at his disposal vast resources that may be used to meet and overcome difficulties affecting the public health. By such individual and collective efforts, it should be possible to extend the average length of life to a minimum of about seventy-five years."

Following forty the death rate rises steadily; and following fifty, abruptly. By forty about one-fifth or 20 per cent of all the people born in the same year are dead; by fifty about one-fourth or 25 per cent; by sixty two-fifths or 40 per cent; by seventy three-fifths or 60 per cent. The other 40 per cent die sometime between seventy and one hundred (or one hundred and five or one hundred and ten), the great majority much before these latter figures. Whereas only 20 per cent die before forty, at our present rates about 30 per cent will die in the twenty-five year period between forty and sixty-five, and at sixty-five one-half of the people born in the same year will be dead.

Aside from the predominance of the congenital conditions as a cause of death in infancy and childhood (or at least before the age of twenty), deaths at ages under forty are largely of infectious or accidental origin. Beginning with the age of forty, how-

ever, degenerative diseases on the basis of the ageing process assume rapidly increasing importance.

Not only do mortality but also morbidity rates rise steadily after forty and abruptly after fifty, reflecting the tendency to break down and to be diseased. It is interesting that in human beings the vascular system and the nervous system are, as a rule, the parts of the body most frequently affected and the earliest to suffer from the ageing process.

The most frequent morbidity is principally in such degenerative conditions as chronic diseases of the heart, chronic nephritis, diseases of the arteries, especially the coronary, and cerebral vascular accidents and certain other related paralysis-producing conditions. These are sometimes grouped for statistical purposes as cardio-vascular-renal diseases although it should be noted that the two latter conditions particularly are clinically considered neuropsychiatric ones.

Great individual variations vitiate our statistics, make generalizations hazardous, and probably account in part for our present lack of knowledge of the principles of the degenerations on the basis of the ageing process.

In exceptional cases, and rather freakishly, degenerative changes and conditions similar to those associated with ageing are found in the thirties and even in the twenties (in the third and fourth decades). Sometimes the degenerations are as advanced, or even more advanced, in some individuals in the forties as they are in others who are in the eighties, accounting for even the lay observation that some persons seem to be as old at forty as others are at eighty. In other words, ageing and senescence can be spread over a period of more than sixty years. No other period of life is so variable.

The causes of these great individual variations as to ageing are not scientifically known although it is desirable and important to determine them. It is presumed at present that a healthy long life is predominantly due to good heredity, plus previous good hygiene and previous favorable environment.

Sometimes we observe individuals who go healthily, vigorously and actively through the pre-senile period of forty to sixty-five, showing little or none of the vascular and other degenerative signs associated with ageing that cause such a morbidity and mortality in this period; and these individuals can go far beyond the sixty-five years ordinarily considered "old age," showing no local involvement of organs or systems and, finally, at a ripe old age breaking down or atrophying as a whole, dying of senility or what has been spoken of as "a major involution of the organism as a whole".

As physicians, we shall never be able to increase the number of such people until we understand the factors involved. At present we must honestly admit that we do not scientifically understand them. At present all we can say is that these people seem to be "biological aristocrats". We cannot say by what means they were endowed with this aristocracy although it is suspected, and further researches in genetics may establish the fact, that these people were endowed at conception with good genes and that the popular dictum that to insure a good and long life one must carefully pick one's ancestors may be true.

At present the only way that a neuropsychiatrist can explain the relative mental and nervous stability of some people and the relative instability of others in advancing age is by postulating a relative mental and nervous (specifically, a cerebral) durability in some people and an instability (or, specifically, a cerebral vulnerability) in others.

Is Ageing Mainly Physiological (or Normal) or Pathological (or Abnormal)?

Two conflicting views are held at present as to the cause and nature of the ageing process in man. Unfortunately, the whole subject continues to be a matter more of opinions and speculations than of scientific investigations and the accumulation of facts. Quoting Lawrence K. Frank, of the Josiah Macy, Jr., Foundation, which has sponsored studies in the subject and the book *Problems of Ageing*, edited by E. V. Cowdry:

"One view considers ageing as an involuntary process which operates cumulatively with the passage of time and which is revealed in different organ systems as inevitable modifications of cells, tissues and fluids; the other view interprets the changes found in aged organs as due to infections, toxins, traumas and nutritional disturbances or inadequacies which have forced cells, tissues and fluids to respond with degenerative changes and impairment. The issue becomes sharply focused upon the possibility of distinguishing between the cumulative but physiological involutions that inevitably take place in all individuals as they grow older, and pathological changes that occur in ageing individuals as the result of adverse environmental conditions. . . . In the

problems of the ageing process we are faced repeatedly with the crucial issue of how to distinguish between normal senescence and the pathology of old age."

Stating the problem more simply, is ageing mainly physiological (or normal) or pathological (or abnormal)? The question is not merely an academic one, for upon the answer hinges our determination as to what extent ageing can be prevented or postponed and to what extent after it has been started can it be reversed.

Laymen and casual thinkers about the subject are apt (perhaps resorting to wishful thinking) to take the view that ageing is pathological—that it can be prevented or postponed. Even theorists can take advantage of our lack of scientific knowledge and exact data about the subject and argue in favor of this point of view. Clinicians from their practical experience are apt to agree with Lewellys F. Barker, who, as their spokesman, states:

"Ageing must, I believe, be considered to be as physiological as is growth at earlier periods, the tendencies both to growth and to ageing processes being inherent in the qualities of the germ plasm inherited."

THE NEUROPSYCHIATRIST'S INTEREST AND CONCERN IN THE PROBLEMS OF THE AGEING PROCESS—NEUROLOGIC

The neuropsychiatrists are very much interested and concerned in the problems of the ageing process. Involvements of the brain and neurologic and psychiatric manifestations occur early and frequently in the ageing process. In spite of the fact that something, perhaps it can be said a great deal, is known about the pathology and the clinical problems concerned, not enough is known to answer with any finality some of the most vital and pressing questions that are raised.

As MacDonald Critchley points out in his chapter on the "Ageing of the Nervous System" in the book on *The Problems of Ageing,* despite the volume of work, the pathogenicity of old age remains a subject of controversy. Even in regard to the brain we find some authorities advancing the point of view that ageing of the brain is an inevitable and esentially physiological process, and, contrastingly, others (including the great late neurologist Tilney) maintain the theory that old age in the brain, as in other organs, is the result of life's successive and cumulative intoxications. According to this view, old age has a pathological background. It arises from definite conditions which may be combated or corrected.

The neurologist is intrigued with the question of the relationship between nervous involution and arteriosclerosis and other vascular changes. He postulates the question, "Can it be that all senile processes, clinical as well as pathological, are ultimately caused by vascular insufficiency, whether from capillary fibrosis or from sclerosis of the larger vessels?" This is incorporated in the popular dictum that "a man is as old as his arteries."

Quoting Critchley: "On the other hand, we have the possibility that the connection is coincidental rather than causal." In support of this he mentions the fact that senility and arteriosclerosis may both occur prematurely, in which case they usually manifest themselves in more or less pure form. He states that there are no *clinical* signs which could strictly be considered as "senile" present in cases of hypertension with or without sclerotic vascular changes in younger people. It seems very odd that he states that it is not yet known for certain *pathologically* whether or not the brains in such cases exhibit the pathologically characteristic marks of senility. It seems that this could be easily established by studying neuropathologically the brains of younger people dying of malignant hypertension, and it is a wonder that this has not been done before. If it has not, this should be a good early and comparatively simple problem to attack among all the problems of ageing.

Critchley continues:

"It may be argued, too, that hyperpiesis (hypertension) (and to a lesser extent, arteriosclerosis) is a pre-senile rather than a senile affection. Both being progressive in nature, they are unlikely to be compatible with an extreme old age. In this way it can be argued that the very aged, by reason of their survival, must be singularly immune from severe cerebrovascular changes. This idea is perhaps supported somewhat by the common observation of a relatively low blood pressure in extremely old subjects."

Critchley quickly extricates himself from too much theorizing by observing, "Obviously, however, the discussion is more of academic than practical importance by reason of the common association of advancing years and cerebral arteriosclerosis."

Localized and premature involutions or degenerations within the nervous system, confined chiefly to certain anatomo-physiological systems, are often en-

countered and may be included among the problems of ageing and may shed some light upon them. Among the examples of these are delayed cerebellar atrophy, Pick's disease and paralysis agitans. The neuronic disturbances and losses in these conditions suggest the similar, though the more diffuse, ones found in senile brains. "The similarity is striking enough to make it tempting to regard these affections as localized expressions of neuronic ageing."

Neurologists encounter degenerations of tracts and systems within the nervous system in young people. The conditions are considered related to congenital conditions, latent at birth, becoming manifest later and constituting examples of a premature ageing or death (or, better still, of a "giving out") of a part long before the decline of other parts of the nervous system and body. Sometimes they are called "abiotrophies," and some of these conditions are known to be hereditary. An example would be the hereditary ataxias, including Friedreich's ataxia, heredodegenerations.

Paralysis agitans is a frequent neurologic condition conecrning which we know a great deal, especially clinically and pathologically. At the same time, its essential nature and cause have not been established. There are indications that in at least some of the cases heredity plays some part. At the same time, paralysis agitans seems definitely associated with the ageing process. Perhaps later studies, especially genetic studies, will show that paralysis agitans and certain other pre-senile neuropsychiatric conditions often represent *late* heredodegenerations, thereby linking up some of the problems in ageing and some of the pre-senile conditions with heredity and with the earlier heredodegenerations concerning which we are accumulating increasing knowledge.

Critchley concludes in a compromise:

"Clinical and pathological study of the nervous system in senility suggests that ageing is not entirely a simple physiological process nor yet an exclusively pathological state. It is to be inferred that both features are operative though their relationship cannot as yet be determined. The pre-senile psychoses and their phenomena of precocious and premature senility offer suggestive avenues for research in this connection."

THE NEUROPSYCHIATRIST'S INTEREST AND CONCERN IN THE PROBLEMS OF AGEING—PSYCHIATRIC

Among the numerous problems of ageing the neuropsychiatrist encounters many more showing mental or psychiatric manifestations than nervous or neurologic.

These mental manifestations may occur in reaction to the realization of the person that he is ageing, in which case we might consider them primarily psychogenic, or they may be due directly to the effects of ageing, in which case they would be considered primarily physiogenic. Perhaps often the mental manifestations are due to a combination of these two factors.

It is the task of the neuropsychiatrist in many cases to evaluate these factors, and the task is rendered more difficult because so often in the beginning there are few, if any, objective signs upon testing for the organic involvement. So often in psychosomatic disease psychic phenomena give us the earlier, more subtle, finer clinical signs, appearing before the objective phenomena which give us the coarser, but the more unequivocal, data.

Alongside the difficult broad biological question of how much of ageing is physiological and how much pathological, the neuropsychiatrist poses the equally, if not more, difficult question as to how much the mental manifestations of ageing are psychologically determined and how much physically determined.

Stating the question popularly, "Is a man as old as he thinks he is, or is he as old as his arteries?"

Psychiatry has given little concerted thought and has made little attempt to segregate the problems that it has encountered which occur on the basis of the ageing process. This stands out in spite of the fact that from one-fifth to one-third of all the first admissions to psychiatric institutions are diagnosed as senile psychoses, psychoses with cerebral arteriosclerosis or involutional psychoses, conditions all associated with the ageing process.

THE DATA AND ARGUMENT OF DAYTON

As an example of the argument in favor of the frequency and importance of the psychiatric conditions on the basis of ageing and, further, of the physiogenic rather than the psychogenic basis of these conditions, attention is drawn to an extraordinary book which has just appeared this year by Dr. Neil A. Dayton, Director of the Division of Statistics of the Massachusetts State Department of Mental Hygiene, *New Facts on Mental Disorders*. In this book Dr. Dayton analyzes a total of nearly 90,000 admissions to the Massachusetts State Hospital System, including about 65,000 new or first admissions. Dr. Dayton maintains that the importance of the ages in

which mental dsorders tend to occur has been all but ignored in psychiatric literature. He comes to the rather startling conclusion that old age plays a great role in mental disorders and that the psychoses due to the ageing process are relatively the most important and the most frequent ones that exist.

Dr. Dayton arrives at these conclusions by proportioning the various psychoses not against the general population, but against the age group of the population in which the different psychoses occur. For instance, Dr. Dayton says that 90 per cent of the cases of dementia praecox occurs between the ages of fifteen and fifty-five and that all of the cases of senile psychoses proper occur after the age of sixty. By quotienting the incidence of dementia praecox with the population of Massachusetts in the age groups of fifteen to fifty-five and the incidence of senile psychoses with the population over sixty years of age, he finds that both senile psychoses and psychoses with cerebral arteriosclerosis have a greater rate of incidence in their population groups than dementia praecox.

Quoting Dr. Dayton in summation:

"The findings suggest a new alignment of the relative importance of the psychoses. Dementia praecox and the manic-depressive group, long regarded as the high incidence psychoses, are displaced by the mental disorders of age, the psychoses with arteriosclerosis and the senile psychoses. . . . The psychoses of old age rise in gigantic proportions. Either the senile psychoses or the arteriosclerotic psychoses are showing a higher incidence than all other psychoses combined."

Dr. Dayton noted a decrease in physical and mental diseases below forty, but an increase in both physical and mental diseases over forty. He noted that the increase in physical diseases is due to the increased incidence of such degenerative disorders as cancer, diabetes, diseases of the heart and arteries, cerebral hemorrhage, nephritis, etc.—diseases known to be age-bound—and he also noted increasing admission rates for mental diseases in advancing and advanced ages. He concludes that progress has been made in overcoming certain diseases, whereas little headway has been made against others. This is in line with the previous observation that we have solved some problems only to create others; that fewer people are dying under forty and are living to be over forty to have both the degenerative physical and mental diseases that occur in later life.

Among the syndromes and diseases encountered by the neuropsychiatrist that are on the basis of the ageing process or that are encountered in the pre-senile and senile periods of life are: the climacteric syndromes, female and male; the involutional psychoses; cerebral arteriosclerosis, with and without psychoses; the pre-senile psychoses (especially Alzheimer's and Pick's disease); the senile psychoses proper. In addition to these "major psychotic" problems, the extramural neuropsychiatrist especially encounters the more frequent psychoneurotic and depressive reactions and tendencies that have been caused (or exaggerated or released) by advancing age.

It must be realized that pre-senile neuropsychiatric conditions are not sharply differentiated, one from the other. A patient in the fifties, in the sixth decade of life, may complain of some of the "hot flushes" of the climacteric, some of the restlessness and depressiveness of an involutional psychosis and some of the headaches and dizziness of cerebral arteriosclerosis. The neuropsychiatrist is often quite hard put to it to determine which symptoms, which process, is predominant. This is sometimes reflected in his confusion as to diagnosis, and this should be taken into consideration when referring such a patient to the psychiatrist and in reading his report of the examination. Since all these symptoms are so frequent in, and since perhaps their grouping is so characteristic of the sixth decade, sometimes the diagnosis "syndrome of the sixth decade" is the most correct and appropriate one, especially if the patient does not clearly fall in any one of the diagnostic groupings.

Medicine in general and practicing physicians in particular should take a greater interest in the problems of ageing and in the hygiene and care of the numerous patients who are undergoing this process. Many of the catastrophies of ageing can be postponed or alleviated, if not eliminated. The main emphasis should be placed upon prevention and care.

The attention of any reader who is interested further is called to the two new and significant books to which reference is extensively made in this article, namely, *The Problems of Ageing*, edited by E. V. Cowdry, and *Some New Facts About Mental Disorders*, by Neil A. Dayton.

UNUSUAL TUMORS AND TUMOR-LIKE LESIONS OF THE SPINAL CANAL AND ITS CONTENTS WITH SPECIAL REFERENCE TO PITFALLS IN DIAGNOSIS.*

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INTRODUCTION

The main difficulty in the diagnosis of a mass lesion of the spine or its contents is *to keep it in mind* when first considering the differential diagnosis of any individual case. This trite medical truism is not an entirely unnecessary statement as proven by the fact that all neuro-surgical clinics have had one or more instances of patients with spinal tumors who have had appendectomies, kidney operations for presumed renal colic, gall-bladder operations, patients treated for supposed intercostal neuralgia or pleurisy, or even a functional complaint, when the underlying lesion was a tumor of the spine or its contents.

A patient rarely has a tumor of the spine unless (1) there is definite pain in the trunk or extremities, or (2) sensory loss, especially diminution or loss of sensation to pin-prick, or both. There are exceptions to this statement, but it is almost always true. If pain is present it may often be aggravated by simultaneously compressing both jugular veins while the patient is lying in bed, as long emphasized by Coleman. The Queckenstedt test may be normal and still the patient may be harboring a tumor, for it is only necessary to have as much space between the tumor and the subarachnoid space as is equal to the bore of the lumbar puncture needle used to obtain normal dynamics, as ingeniously proved by Poppen and Hurxthal.[1] The sensory disturbances are often indefinite and misleading, as stated by Grant,[2] and lipiodol is frequently required. If used judiciously, and in small amounts, lipiodol causes little or no harm and its alleged ill effects have been considerably exaggerated.

A spinal cord tumor is a relatively common lesion and it should not be the last consideration in a differential diagnosis of spinal cord disease, as emphasized by Spurling and Mayfield.[3] It is important to remember that pain, as suggested by Fay,[4] may arise long before any of the other characteristic signs of a spinal cord neoplasm. In the presence of definite sensory or (and) motor disturbances in the trunk or extremities, with or without bladder and rectal dysfunction, a lumbar puncture should be done at the earliest opportunity. It is important to observe whether there is any xanthochromia and whether the spinal fluid coagulates on standing (Froin's syndrome). The spinal fluid protein content is the most important single chemical test: the normal value is 15-45 mgm. per cent in the lumbar fluid and 10-15 mgm. per cent in the cisternal fluid. The cell count, Wassermann and colloidal gold reactions should be determined and occasionally sugar, chlorides and a culture should be obtained, especially if an infectious process is suspected. The Queckenstedt test† may show a complete or incomplete block if the mass lesion lie above the site of the needle; a combined cisternlumbar puncture may be necessary for definite demonstration that a block is present and lipiodol may be injected in the cisterna magna at that time if necessary. The dynamics in the case of a lower lumbar or a lumbo-sacral tumor would, of course, be normal unless the reversed Queckenstedt test were utilized.

A complete investigation of a patient for a surgical lesion of the spine includes a careful chronological history of the onset of the disease, with special attention given to pain, sensory or motor disturbance and sphincteric dysfunction. The occurrence of trauma, as well as any severe illness or operation, should be determined. The patient should be asked whether coughing or straining exaggerates the pain; if present, Coleman's maneuver, as described above, should be carried out. An X-ray film of the lungs should invariably be made of every patient over thirty-five years of age who is suspected of harboring a spinal (or intracranial) tumor, to rule out or

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*Read, in part, before (1) the Neuro-Psychiatric Society of Virginia at the University of Virginia, January 26, 1938; (2) at the annual Ex-Internes' meeting, Medical College of Virginia, April 27, 1938, and at (3) the Rockbridge County Medical Society, Lexington, Virginia, February 3, 1939.

†It cannot be too strongly emphasized that the Queckenstedt test is to be utilized only in *spinal diagnosis* and has no use whatsoever in the investigation of *intracranial lesions*, and may, indeed, do irreparable harm in the latter instance.

XUM

establish the presence of a metastatic lesion. A rectal and pelvic examination should never be omitted. Careful inspection, palpation and percussion of the spine is necessary, followed by roentgenograms of the area under suspicion, and, finally, by spinal fluid studies with or without the utilization of a contrast medium, as the individual case may warrant.

The following nine cases (briefly abstracted) operated upon at the University of Virginia Hospital during the last two years, have not been selected because they are all rare or unusual pathological lesions *per se*, although this is true of the greater number of them, but to endeavor especially to point out certain pitfalls in diagnosis which should lead to earlier recognition of such affections with concomitant sparing of the individual patient of months and even years of needless disability. One case is in the cervical region, five are in the thoracic area and three are located in the lumbo-sacral portion of the spine.

A. Cervical Region: (one case)

Case I. **A white man, aged forty-one, a carpenter, was admitted to the University of Virginia Hospital November 12, 1937. He was well until eight months before admission when he developed pain between the shoulders, relieved by hypodermics of morphine. The pain became especially severe five weeks before admission, following which numbness and pain also developed in the right arm and shoulder and a right-sided Horner's syndrome was detected. On admission, a Brown-Sequard syndrome was found with hypesthesia on the left side up to the fourth thoracic dermatome. A cord tumor was suspected at C_7—T_2 vertebral level. The Queckenstedt test showed a complete block, the spinal fluid protein being 50 mgm. per cent. Lipiodol in the lumbar spine was blocked completely at T_1 vertebra with the patient in the Trendelenburg position. Laminectomy of C_{6-7}—T_{1-2} (November 15, 1937) was carried out and a large extra-dural cyst was removed at C_7 vertebral level (Fig. 1). It was chiefly on the right side and evidently was an extension of herniated arachnoid through a small punctate opening just to the left of the midline of the dura. The dura was opened; no block was demonstrated when the anesthetist compressed both jugular veins. The patient recovered from the operation quite well except for a persistent draining sinus in the operative wound for several months, finally eradicated by the removal of several black silk sutures. The patient returned to his work as a carpenter at which he is now engaged, with his old-time vigor, there being no weakness, pain or numbness in the extremities. The pathological diagnosis was arachnoid cyst.**

Comment: Spinal extra-dural cysts in the thoracic and lumbar regions have been described by a number of writers, including Lehman,[5] Kelly[6] and Cloward and Bucy,[7] but these cases were of an entirely different variety: they almost invariably occurred in adolescents with the syndrome of kyphosis dorsalis juvenilis, as shown by clinical and roentgen examination. This case (Case I) may have been due to trauma as he had had a severe contusion of the cervical spine several months before onset of the symptoms and a small fragment of bone may have been driven through the dura, allowing the arachnoid to herniate, which later became sealed off with the formation of the cyst. This is substantiated by the pathologist's finding of hemosiderin in the extra-dural tissue removed and old necrotic bone, having nothing to do with the operation. At all events, it is the only case of spinal extra-dural cyst in the *cervical region* on record in the literature, to the writer's knowledge.

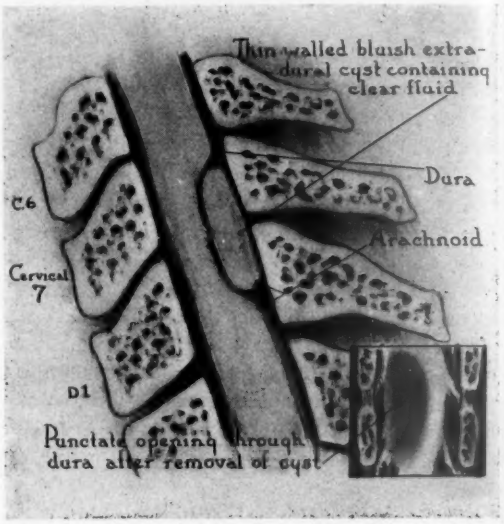

Fig. 1 (Case I).—Extra-dural arachnoid cyst at C_7 vertebral level producing marked cord compression including a Brown-Sequard and Horner's syndromes. Inset in lower right hand corner shows the distinct opening in the dura through which the arachnoid had herniated.

B. Thoracic Region: (five cases)

Case II. **A white widow, aged sixty-eight, was admitted to the University of Virginia Hospital June 15, 1939, in a very weak condition. Her complaint on admission was "joint trouble and right-sided pleurisy". There had been weakness and numbness of the legs for ten months before admission. Dysuria had been present for several weeks and she had lost nineteen pounds in the last four months. Hypertension was present: 220/120. The patient was unable to walk and was confined entirely to bed.**

Examination showed a typical clinical picture of localized cord compression in the upper dorsal region. There was a partial Brown-Sequard syndrome present; the right leg was weaker than the left but sensation to pin-prick on the right was perceived better than on the left. There was a sharp girdle-like pain in the right lower chest on simultaneous compression of both jugular veins and a bilateral ankle clonus and a positive Babinski sign were present.

A lumbar puncture showed a block by the Queckenstedt test and the total protein was 75 mgm. per cent.

As the sensory level was rather indefinite, 1.25 cc. of descending lipiodol were placed in the cisterna magna during a combined cistern-lumbar puncture and this was blocked off at the fourth thoracic vertebra.

At operation (June 22, 1939) under avertin-novocaine anesthesia, a laminectomy of T_{3-4-5} was carried out. A circumscribed tumor, the size of a large marble, was found and completely removed at T_4 vertebral level. It was extra-medullary (subdural) in location and compressed the cord markedly on the right side. Two adjacent posterior roots were divided between silver clips to obliterate the pain in the right side of the chest. The histological diagnosis of the tumor was meningioma (Fig. 2).

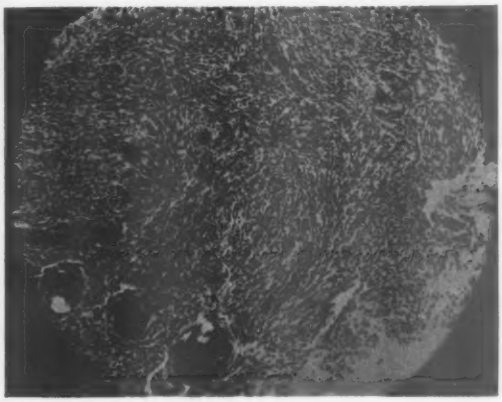

Fig. 2 (Case II).—Microscopical appearance of removed tumor (X470). Note the typical psammoma bodies and the characteristic whorl-like arrangement of tumor cells seen in the meningioma. This is a completely benign tumor, rarely recurs, and post-operative irradiation is not necessary.

The patient made a rapid recovery and, when last seen (September 12, 1939), about three months after the operation, she was walking without support and all the pyramidal tract signs in the lower extremities had disappeared. There was no right-sided chest pain and no dysuria.

Comment: Considerable apprehension was felt as to whether this patient could tolerate a major operation, because of her age, general asthenia and hypertension. A chest film showed no metastatic lesion and, as it happened, she went through the procedure quite satisfactorily under novocaine anesthesia with a basal anesthetic of avertin. The fact that the patient voluntarily stated that the pain in the right side of the chest was *aggravated by coughing and straining,* together with the finding of weakness and numbness in the legs and dysuria, should have led immediately to the next procedure—lumbar puncture with the Queckenstedt test and protein determination. As emphasized in the introduction to this paper, the important point is *to have the possibility of a spinal cord tumor in mind,* when first examining such a patient, which makes for success in early diagnosis of surgical lesions of the spine.

Case III. A white school boy, aged seventeen, was admitted to the University of Virginia Hospital March 15, 1939. There had been a gradual onset of weakness and numbness of the lower extremities for fifteen months before admission, terminating in a rather sudden complete paraplegia two days after a lumbar puncture, performed elsewhere, three months before admission. There was little pain associated with the paraplegia, although a dull ache was present in the right side of the chest and at the xiphoid, not exaggerated by coughing and straining.

Examination disclosed a complete spastic paraplegia with the classic neurological findings in the lower extremities, except that no ankle clonus could be demonstrated, although the ankle joints were quite mobile. The sensory level was at T_7 dermatome bilaterally and there was tenderness on percussion over $T_{4-5-6-7}$ spines. Bilateral jugular compression induced slight pain in the right lower chest. Bladder and rectal incontinence were present. X-ray examination of the dorsal spine showed definite erosion of the articular facets of T_{5-6} vertebrae. A lumbar puncture showed a complete subarchnoid block, xanthochromic fluid, and 1000 mgm. per cent of protein. No lipiodol injection was necessary as the sensory level was definite and fixed, as shown on several examinations.

The first operation had to be terminated before the skin incision was made due to marked circulatory collapse when the patient was placed in position for an upper thoracic laminectomy, under avertin-ether anesthesia. Several days later (March 24, 1939), under one per cent novocaine anesthesia, a laminectomy of $T_{4-5-6-7}$ was carried out without difficulty. On the right side, a hard, malignant, extra-dural mass of tissue was found almost completely covering and markedly compressing the dura and its contents (Fig. 3). The dura—in large part—was uncovered, although this portion of the operation was very vascular due to the nature of the tumor. The dura was not opened. The histological diagnosis was Ewing's tumor of the spine.

The patient was given massive irradiation over the site of the tumor and discharged to his home. When last seen (May 25, 1939), two months after operation, sensation to pin-prick had almost entirely returned and bladder control had improved but there was no volun-

tary motor power of the legs, mass (involuntary) movements alone being present (see footnote in comment, infra).

Comment: The gradual onset of paraplegia (with sensory changes) in a young individual with a subarachnoid block and only slight pain suggested an intramedullary glioma rather than an extra-dural mass, the latter lesion usually (?) being characterized by more or less severe pain in the spine, trunk or extremities.

Dura and its contents compressed to ribbon-like consistency
Dura and contents relieved of compression after subtotal removal of tumor
4th thoracic
5
6
7
Vascular remnants of tumor

Fig. 3 (Case III).—Ewing's tumor producing marked cord compression with resultant paraplegia. This tumor was extremely vascular. Operation was followed by X-ray therapy to which this tumor is markedly sensitive, but only temporarily so.

However, the finding of definite erosion of the articular facets on X-ray examination of the spine demonstrated rather an extra-dural tumor, for intramedullary gliomata rarely produce erosion of the vertebrae to the extent that it is visible on the X-ray plate.

Particular interest in this case centers on the rarity of Ewing's tumor appearing primarily in the spine. Practically all such growths occur in the long bones of the extremities; they are rare also in the ribs. Geschickter and Copeland[8] state that Ewing's tumor is a neoplasm occurring in the first two decades of life, most frequently involving the tibia and femur. It may metastasize late in the disease to other bones, rarely to the ribs and even more rarely to the spine. They believe that it arises within the lymphatic channels of bone. Combined surgery and irradiation yields 10 per cent of permanent cures and the average post-operative duration of life in fatal cases is sixteen months. In a series of 106 cases of Ewing's tumor reported in their monograph, there was only one case involving the spine.

Geschickter and Maseritz[9] state that Ewing's tumor (sarcoma) has a tendency to diminish rapidly under irradiation. It is frequently confused, especially in the long bones, with subacute or chronic osteomyelitis. (Within the last year, the writer has seen a case of Ewing's sarcoma arising primarily in the mastoid region, which had previously been operated upon with a diagnosis of mastoiditis. Irradiation brought about marked regression of the tumor). The ultimate diagnosis of the disease rests on the microscopic findings although irradiation as a therapeutic test may properly precede biopsy. Trauma appears to play a role. In a report of 135 cases by Geschickter and Maseritz, death occurred in 94 per cent, so that the prognosis is grave. Males are affected twice as frequently as females.

In regard to the frequency of Ewing's tumor in a large group of spinal tumors, Rix and Geschickter[10] found that it did not occur even once in their series of 291 spinal tumors. Histologically, Ewing's tumor closely resembles sympathicoblastoma although the latter is of paravertebral (neurologic) origin.

The long duration of the complete paraplegia before operation (three months) due to a malignant tumor renders the possibility for restoration of motor power in the lower extremities quite remote in this patient.*

*Since the above statement was first written, the patient visited the follow-up clinic (July 24, 1940; sixteen months after operation and fifteen months after irradiation) and demonstrated remarkable improvement. He had been able to walk with the aid of a cane since May, 1940. The motor power of the extensor and flexor muscles of the legs was good and sensation was normal. There were no urinary symptoms and the rectal sphincter was of good tone. He had gained twenty pounds in weight and was about to begin work in a factory.

This very satisfactory and unexpected result demonstrates (as does Case V of this report, infra) the extreme degree of compression to which the spinal cord may be subjected and from which recovery may occur, provided the compression is relieved before irreparable damage has been done to important nerve tracts or to the blood supply of the cord.

Case IV. A white housewife, aged forty, was admitted to the University of Virginia Hospital December

16, 1937, on the obstetrical service, at term. The next day she was spontaneously delivered of a normal male infant. She had noticed, however, a slowly developing weakness of the legs for three months before admission, which became rapidly worse after delivery and especially after lumbar puncture several days before laminectomy (q. infra). There was little pain in the trunk or extremities except a slight ache in the right lower chest wall.

On initial examination, (December 29, 1937) an almost complete paraplegia was disclosed except for slight motion in the left foot. A sensory level (to pin-prick) was found at T_4 dermatome on the right side and at T_7 dermatome on the left side. The knee jerks and ankle jerks were exaggerated and a bilateral ankle clonus and Babinski sign were present. There was incontinence of bladder and rectum.

A Queckenstedt test showed a complete subarachnoid block; very faintly xanthochromic spinal fluid was obtained. The spinal fluid protein was 675 mgm. per cent. As there was marked disparity between the sensory levels on the two sides, a cisternal puncture was done and 1.5 cc. of descending lipiodol were blocked off completely at T_8 vertebra. The cisternal fluid contained 20 mgm. per cent of total protein (normal).

The appearance of the lipiodol (fusiform spreading on either side of the canal) and the absence of definite pain suggested an intra-medullary glioma as the most likely lesion.

However, at operation (one per cent novocaine anesthesia) an extra-dural tumor attached to a right-sided posterior root at T_7 vertebral level was found and removed together with the root from which it arose (Fig. 4). The dura was markedly depressed and indented by pressure from the tumor. The dura was opened. No intra-dural lesion was found, and the Queckenstedt test with the dura opened (performed by the anesthetist) was normal. The histological diagnosis of the tumor was neurofibroma.

The patient made a rapid post-operative recovery and in four or five days she could move the lower extremities very well. In a few weeks, she was carrying out her usual household duties except for backache (the patient is very obese), which was relieved by orthopedic measures. When last seen on June 29, 1939, her condition was excellent. She was able to move each leg quite well and there was no demonstrable numbness in the lower extremities or trunk. The knee jerks and ankle jerks were equal and hypoactive and there was no clonus or Babinski sign. Bladder and rectal function were normal.

Comment: It was a pleasant surprise to find a benign completely removable extra-dural lesion in this patient rather than an intra-medullary glioma which was suggested by the absence of pain and the lipiodol shadow. As our experience with spinal cord tumors grows, the time-honored adage of an extra-dural tumor usually being associated with definite pain has come to be untenable.* Likewise, the appearance of a fusiform division of the lipiodol column as being rather definitely diagnostic of an intra-medullary tumor or cyst has been found to be misleading, as demonstrated by this case.

Lumbar puncture with the Queckenstedt test—in the presence of a mass lesion in the spinal canal—may be followed immediately, or in a few hours, by a rapid aggravation of symptoms as seen in this and

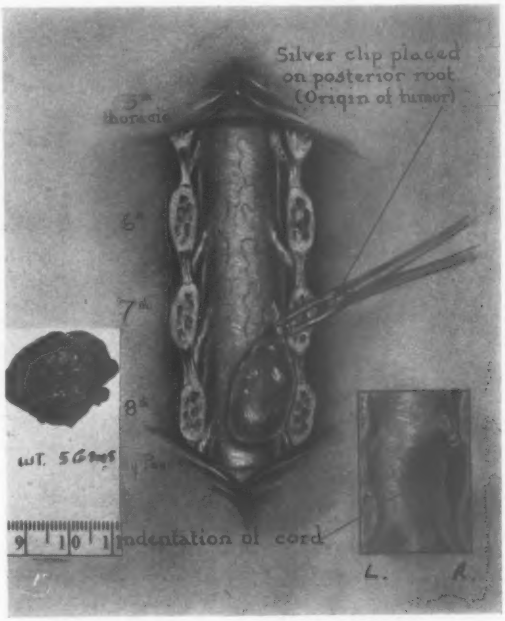

Fig. 4 (Case IV).—Extra-dural neurofibroma arising from T_7 posterior root on the right side, removed *in toto*. The tumor had caused an almost complete paraplegia which developed precipitously after the strain of delivery. The lower right inset shows the marked indentation of the dura; the lower left inset is a photograph of the actual tumor.

the preceding case, and, therefore, early laminectomy (after the Queckenstedt test) should be carried out before too great or too long compression of the cord, and especially of its blood supply, has occurred.

As has been emphasized by many previous writers, such a case as the one just described constitutes one of the most satisfactory experiences in the entire field of surgery.

Case V. A white truck driver, aged forty-one, was

*Since this paper was first written, we have operated upon a five-year-old white girl (August 3, 1940) with a large *extra-dural* tumor (osteogenic sarcoma) at T_{3-4-5} vertebral level. This was associated with an almost complete spastic paraplegia *but no pain whatsoever.* Operation was followed by excellent recovery in motor power of the lower extremities, beginning a few hours post-operatively.

admitted to the University of Virginia Hospital May 21, 1938. There had been sharp pain in the right lower abdominal wall for two years before admission, for which he had been treated in several other hospitals. At one time, his appendix had been removed; the pain continued unabatedly. While under observation in an excellent hospital in another state, a "sterile" hypodermic injection "relieved" the patient and therefore a diagnosis of hysteria or malingering was made. For two weeks before admision, complete paraplegia had been present with incontinence of bladder function. Coughing and straining increased the pain in the right lower abdomen as did bilateral jugular compression. The patient, of a naturally asthenic habitus, had lost fifteen pounds or more in weight in the last few months before admission and appeared almost emaciated.

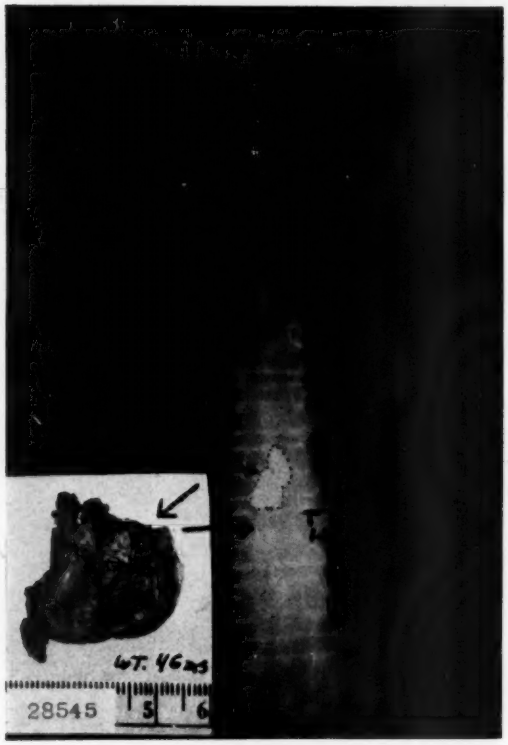

Fig. 5 (Case V).—Cisternal lipiodol injection, showing the oil completely blocked at top of T_{10} vertebra with the patient semi-erect. The appearance of the shadow suggests a subdural tumor although usually the lower border of the lipiodol is more concave. Lower left inset, placed exactly opposite the location of the tumor in the spine, is a photograph of the actual neoplasm.

On examination, a complete *flaccid* paraplegia was present with absent ankle jerks and hypoactive knee jerks. There was no ankle clonus or Babinski sign. A Queckenstedt test showed a complete block. The Froin syndrome was present and the protein content of the lumbar spinal fluid was 1200 mgm. per cent. As the sensory level in the region of the umbilicus was somewhat indefinite and changed slightly on several re-examinations, 1.5 cc. of descending lipiodol were placed in the cisterna magna and this was blocked completely at T_{10} vertebral level (Fig. 5).

At operation (June 1, 1938) under avertin-ether anesthesia, a subdural, extra-medullary tumor was found and entirely removed; it arose from the right tenth thoracic posterior root (Fig. 5). It compressed the spinal cord to a ribbon-like thinness so as to make recovery of cord function appear unlikely. The histological diagnosis was neurofibroma.

The patient's sensation improved markedly in a few days; motor power was more slowly regained. When seen in a follow-up visit on October 8, 1938, four months after operation, he was back at work as a truck driver, being able to move each leg quite well. Sensation to pin-prick had completely returned and all pain in the right abdominal wall had disappeared. The reflexes at the knees and ankles were equal and active (having been diminished or absent before operation) and there were a few clonic jerks detectable at each ankle and a bilateral equivocal Babinski sign was present. When last seen (September, 1939) he was asymptomatic; the only residual sign of a seemingly irreparable lesion, as estimated before operation, was an equivocal Babinski sign of the right foot.

Comment: There are several lessons to be learned from this case. As in several of the preceding patients, it was the *lack of thinking of the possibility* of a cord tumor which led to the long delay in relieving the patient. If it had been merely considered, diagnosis would have been immediate, considering the outstanding findings which lumbar puncture would inevitably have disclosed.

Furthermore, physicians should constantly be on guard against classifying a patient as neurotic or hysterical because he is apparently relieved by a "sterile" hypodermic injection. Practically all seriously ill patients, as well as those with functional complaints, are subject to a certain degree of suggestion. One not infrequently hears of such an instance and cannot help wondering if every diagnostic procedure was utilized before such a statement was made.

When a tumor has compressed the cord to the extent of causing a complete *flaccid* paraplegia and when, in addition, the operator finds the cord to be compressed to a few millimeters in thickness, appreciable recovery of cord function is usually extremely doubtful. This is so, not because the fiber tracts are not capable of preserving their integrity against extreme and long-standing pressure *per se* but because such compression is frequently associated with *occlusion of the arterial blood supply of the*

cord with resultant thrombosis and irreparable softening from which no relief is obtained even when the tumor is removed. That this did not occur in this instance was a mere matter of chance; apparently no arterial thrombosis occurred and complete recovery was therefore possible.

Case VI. A white storekeeper, aged thirty-three, showing well-advanced von Recklinghausen's disease, was admitted to the University of Virginia Hospital on February 17, 1938. Seven years before admission a large neurofibroma, the size of a goose egg, had been removed by the late Dr. William Goodwin from one of the intercostal nerves on the right side. There had been no recurrence of this lesion. For several months before admission in 1938, the patient had been aware of severe pain in the right lower chest and upper abdomen, exaggerated by coughing and straining. The face,

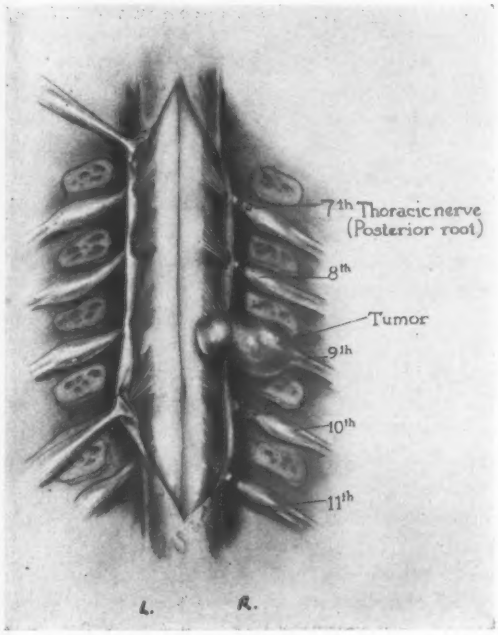

Fig. 6 (Case VI).—Neurofibroma arising from T_9 right posterior root, removed *in toto* at first operation. At the second operation (six months later) a large neurogenic sarcoma was found at the same site. The posterior roots, divided above and below the tumor, to relieve pain, were sectioned central to the ganglia, to prevent reformation of sensory root fibers.

chest and back, particularly, were covered with innumerable cutaneous and subcutaneous tumors of a neurofibromatous type. There was no weakness or sensory change in the legs or trunk whatever nor was there any sphincteric disturbance. Bilateral jugular compression induced sudden severe pain in the right lower chest. It was assumed that a neurofibroma had developed on one or more posterior roots in the right thoracic region of the cord. The Queckenstedt test was normal. A combined cisternal-lumbar puncture showed 75 mgm. per cent of protein in the cisternal fluid and 225 mgm. per cent in the lumbar fluid. One and five-tenths cc. of descending lipiodol were placed in the cisterna magna and this was definitely blocked at the level of the ninth thoracic vertebra. There were many small identations in the moving oil column as it was observed under the fluoroscope, indicative, in all probability, of multiple tumors. At operation (avertin-ether) a dumb-bell shaped, hour-glass, circumscribed tumor was found arising from the right ninth posterior thoracic root, being situated both extra and sub-durally (Fig. 6). The tumor—with the greater portion of the posterior root—was removed *in toto*. The right-sided posterior roots of T_{7-8} and T_{10-11} were also divided between silver clips to insure an adequate area of anesthesia above and below the site of the severe root pain in the right abdominal wall. The histological diagnosis was benign neurofibroma with, possibly, early sarcomatous changes. X-ray therapy was considered inadvisable at the time, as the probability of malignancy was quite doubtful and the tumor had been completely removed. Its gross appearance was certainly benign, appearing exactly like the ordinary neurofibroma of the cord, when it occurs singly.

The patient was entirely relieved of the pre-operative pain in the right side of the chest and abdomen. An area of complete anesthesia to pin-prick stimulation was found corresponding to the divided thoracic posterior roots on the right side.

The patient was re-admitted to the hospital September 21, 1938 (six months after the previous laminectomy) and reoperated on at the same site two days later. He had been well for the first four months after operation but, for two months before the second admission, he had become aware, for the first time, of a spastic weakness of the legs. There was also difficulty in voiding.

On examination, moderate impairment of motor power in the legs was detected and there was a bilateral ankle clonus and a positive Babinski sign. On the left side the sensory level to pin-prick stimulation was at T_{11} dermatome, the right side being unreliable for localization because of the previous division of posterior roots at the first operation. A lumbar puncture disclosed a complete subarachnoid block with 400 mgm. per cent of protein, although this elevation of protein might have been due, in considerable degree, to the lipiodol injection six months before that time (March, 1938) when hospitalized for the first operation. The patient was placed in the Trendelenburg position and the previously injected lipiodol was found to be completely blocked off at T_{10} vertebra. The significance of this was difficult to interpret as the opening of the dura and removal of the tumor just above this region, six months before, might well have impeded the free flow of lipiodol in itself. It was thought, however, that there had been a recurrence of the tumor and that in the meantime it had become definitely malignant.

At operation (avertin-novocaine), a large reddish-gray

extra-dural tumor mass was found at the level of T_{10} vertebra which was just adjoining the site of the neurofibroma removed six months before that time. It was impossible to determine whether the now obviously malignant tumor had arisen from the posterior root remnant of the first tumor, or had begun in the adjoining root below. The dura was completely denuded of tumor although there was rather sharp hemorrhage on two or three occasions; this was controlled by muscle implants. The dura was not opened. It was hoped that the unroofing of the dura would restore the motor power of the weakened lower extremities especially when combined with the massive X-ray therapy given post-operatively. The histological diagnosis was neurogenic sarcoma, grade II.

The patient regained considerable motor power during the first few weeks after operation while receiving X-ray therapy. When last seen on May 15, 1939, eight months after the second operation, the disease appeared completely arrested so far as could be determined by neurological examination, with the exception of one or two clonic jerks of each ankle. He was able to move each leg quite well, and there was no Babinski sign and no pain in the trunk and legs, even on bilateral jugular compression. The patient had resumed his former occupation as a storekeeper.

Comment: It is impossible to state how much of the improvement after the second operation was due to irradiation and how much to operative removal of the malignant mass, although it is generally held that the neurogenic sarcomata are indifferently responsive to irradiation.

This case illustrates the veracity of the observations of Poppen and Hurxthal[1] that a symptom-producing tumor of the cord may well be present even if the Queckenstedt test is normal. This was demonstrated by the pre-operative investigation before the first laminectomy which revealed a large dumb-bell tumor arising from the right T_9 posterior root.

It was impossible to be certain whether the malignant tumor found at the second operation arose from the remnant of the right T_9 posterior root (a distinct possibility) or whether it was a different tumor entirely which had rapidly grown after the first operation during the six months which elapsed between the two laminectomies. At the time of the first laminectomy, there was little compression of the cord (only root pain was present and the Queckenstedt test was normal); at the time of the second laminectomy, there was marked cord compression as demonstrated by the complete subarachnoid block and by the spastic weakness of the legs which had developed entirely between the two operations.

There is considerable difference of opinion among pathologists concerning the true nature of von Recklinghausen's disease. Kaufmann[11] states that "pure fibromas of the peri and endoneural connective tissue occur; other tumors, in the same individual, show a small number, still others a larger number of nerve fibre cells". He believes it is a congenital disease of the anlage and that the lesions are true malformations. The onset of the disease is usually manifested by pigmentation and the formation of skin tumors with late involvement of the posterior roots of the cord and the cranial nerves. Acoustic neurinoma is a frequent accompaniment of von Recklinghausen's disease, but these tumors arise from the nerve sheath and the nerve itself is involved only secondarily. The patient described above (Case VI) shows no clinical evidence of an acoustic neurinoma to date. Kaufmann states that metastases in von Recklinghausen's disease are rare but one nodule after another may become histologically sarcomatous. MacCallum[12] believes that such tumors are derived from the sheath cells of Schwann which are of ectodermal origin and are not derived from connective tissue. Boyd[13] asserts that the deeper non-cutaneous growths especially are prone to undergo sarcomatous changes and constitute a frequent cause of death in this disease. He mentions the occasional occurrence in von Recklinghausen's disease of a meningioma or a glioma in the spinal cord or brain. In the case just reported (Case VI) Boyd's comment as to malignancy is especially appropriate. The dividing line between neurogenic fibroma and neurogenic sarcoma is very indefinite: it can be malignant although there may be none of the ordinary microscopic features of malignancy discernible. It may appear entirely benign when removed but can promptly recur and then begin to infiltrate the surrounding tissues like a true sarcoma. Perhaps the best pathological conception of von Recklinghausen's disease is that of Smith and Gault:[14] "The tumors are derived from the nerve fibres and from the sheath fibres combined, producing neurofibromata. The tumor, as demonstrated by special staining methods to show the presence of nerve fibres, may be shown to be a composite or true 'mixed' tumor involving the highly specialized connective tissue of the nerve sheath and the actual nerve fibre itself."

C. Lumbar and Lumbo-Sacral Regions: (three cases)

Case VII. **A white highway construction foreman, aged forty, was admitted to the University of Virginia**

Hospital on September 10, 1938. There had been severe pain in the lower back with bilateral foot drop for two months before admission. Dysuria was present. The pain was exaggerated by coughing and straining.

Examination disclosed a flaccid weakness of the lower legs with anesthesia of the saddle area and of the genitalia. The lateral aspects of the feet were hypesthetic to pin-prick. The knee jerks were of equal intensity and active although the ankle jerks were absent. There was no ankle clonus or Babinski sign in either foot.

The plain films of the spine were normal. A Queckenstedt test performed at L_{2-3} interspace was normal, although the spinal fluid protein was 300 mgm. per cent. Three cc. of lipiodol, placed in L_{2-3} interspace, produced

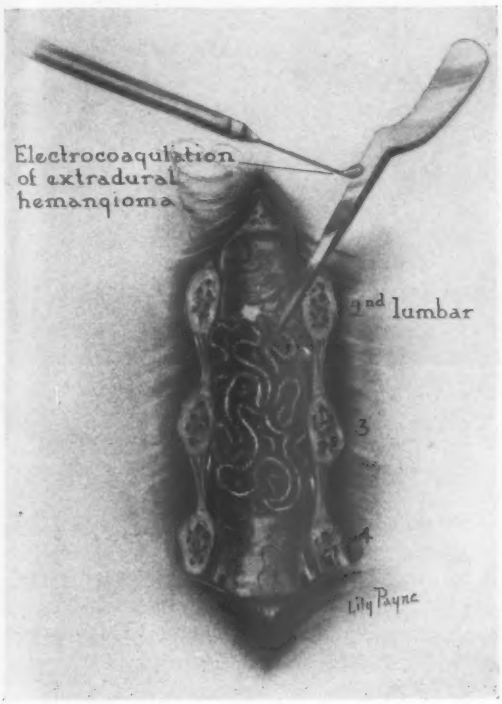

Fig. 7 (Case VII).—Large extra-dural hemangioma at L_2 vertebral level producing flaccid weakness of legs and feet and dysuria together with severe pain in lower back and legs. The lesion was coagulated electro-surgically and irradiated post-operatively with complete subsidence of disabling symptoms.

a block at L_3 vertebra. The patient himself made an astute observation: although the pain in the lower back and legs was greatly increased on bilateral jugular compression, he noticed, and voluntarily stated, that this did not occur when both jugular veins were compressed while the lumbar puncture needle (at L_{2-3} interspace) and manometer were in place, i.e., the pressure wave was apparently diverted through the needle and manometer just above the tumor and did not impinge on the mass itself, as it did when the subarachnoid space was closed. Immediately on withdrawing the needle and manometer and repeating the Queckenstedt test, pain again was induced. Doubtlessly, pain could also have been produced even with the manometer *in situ* by occluding the rubber tube connection between the needle and manometer while the Queckenstedt maneuver was being done.

Laminectomy at L_{2-3} (September 16, 1938) under novocaine anesthesia disclosed an *extra-dural* hemangioma at the third lumbar interspace (Fig. 7). The dura was completely covered with a tangled mass of vessels, apparently of arterial nature. The periphery of the angioma was coagulated with the electro-surgical apparatus and post-operative X-ray therapy administered.

When last seen (September, 1939), one year after operation, his general condition was excellent. All pain had disappeared and he had been back at work for six months or more after operation. The only residual neurological finding was a small (3 cm.) area of peri-anal anesthesia. Bladder function was normal and dorsiflexion of the feet against resistance was powerfully performed.

Comment: *Extra-dural* hemangiomas of the spine and of the brain are quite rare. The subdural variety occurs considerably more frequently, as seen in the case reported by Black and Faber[15], who stated that only ten per cent of blood vessel tumors and varices of the cord were purely arterial; 90 per cent were composed of equal numbers of (1) true neoplastic hemangiomas (hemangioblastomas) and (2) of venous dilatations. Blood vessel lesions of the central nervous system are best divided into two main groups: (1) true blood vessel tumors and (2) angiomatous malformations; the latter lesion is not a true neoplasm but has been included in most reviews of the subject, presumably because of the similarity of the clinical syndrome. Cushing and Bailey,[16] in their masterly monograph on blood vessel tumors of the brain, likewise divide all such lesions into angiomatous malformations and true blood vessel tumors (hemangioblastomata).

The writer recalls a case seen in 1937 at the Medical College of Virginia in Dr. Coleman's Clinic. An adolescent girl had developed a flaccid paraplegia following a severe fall on the buttocks when a chair was pulled out from under her at school. At operation, a large intra-dural hemangioma involving the cauda equina was disclosed. Two years later, after post-operative X-ray therapy, the patient was ambulatory with moderate bilateral foot drop. Occasionally, in the female, such lesions first manifest themselves clinically and spontaneously at the onset of the menses, presumably due to a periodic vicarious

engorgement of the angiomatous vessels, comparable to vicarious menstruation (epistaxis).

All writers on the subject agree as to the value of post-operative irradiation in the treatment of hemangiomas and vascular malformations of the brain, spinal cord and elsewhere. In this instance (Case VII), the combined effect of electro-coagulation and irradiation has been entirely satisfactory to date.

Case VIII. A white man, aged forty-six, a jeweler, was admitted to the University of Virginia Hospital directly from a tuberculosis sanatorium on June 1, 1939. He had had pulmonary tuberculosis for twenty years and the sputum was positive for tubercle bacilli on admission. A two stage thoracoplasty had been done by Dr. E. C. Drash several weeks before the present admission, followed by definite improvement of the tuberculosis.

Two years before the present admission, the patient noticed severe pain and burning in the right lumbar region which radiated to the right thigh. This was greatly exaggerated by coughing and straining.

Neurological examination was essentially negative, with no numbness, weakness or reflex changes in the extremities. The pain radiated into the right thigh anteriorly and was, therefore, not of the sciatic type. Bilateral jugular compression induced immediate severe pain in the lower back and right thigh.

A Queckenstedt test (L_{3-4}) showed a complete block. The spinal fluid was xanthochromic in color. The total protein content was 1000 mgm. per cent. Three cc. of descending lipiodol was introduced (L_{2-3}) and this was blocked off at L_2 vertebra while the patient was in the extreme Trendelenburg position. Also, the oil, from L_2 vertebra downward toward the sacrum, with the head elevated, showed many indentations as it descended. The pre-operative impression was: cauda equina tumor, possibly a tuberculoma.

The patient was operated upon in two stages because of his serious lung lesion. At the first operation (June 7, 1939) under spinal anesthesia, supplemented by nitrous oxide and oxygen anesthesia at closure, a first stage laminectomy of $L_{1-2-3-4}$ was carried out with exposure of the dura only; the wound was closed. At the second operation, one week later (June 14, 1939), the dura was opened from L_1 to L_5 vertebrae. A tumor lying anterior to the cauda equina was readily exposed which appeared, at first glance, to be benign. It was reddish-purple in appearance and five to six centimeters in length. Overlying it was a posterior root extending to the right, doubtless the source of the patient's pain. When an attempt was made to remove the tumor, severe hemorrhage was met with in freeing it at its upper and lower poles as well as in the center. The tumor was aspirated on several occasions and liquid blood was obtained. A frozen section report during the operation disclosed a malignant tumor—type not then determinable. About three-fourths of the tumor could be removed, following which the Queckenstedt maneuver performed by the anesthetist produced a free flow of fluid from above. The dura was completely closed and the patient was returned to the ward in good condition. The final histological diagnosis was angioblastic meningioma—Type 4 of Cushing and Eisenhardt's[17] classification (Fig. 8).

The patient made a satisfactory post-operative recovery. The pain in the right leg disappeared and he received heavy irradiation, post-operatively, before being transferred to the sanatorium where he is at the time of writing. He is still free from pain; a slight weakness of the right leg is the only residual finding following the extensive dissection in the region of the cauda equina incident to the operative attack on the tumor.

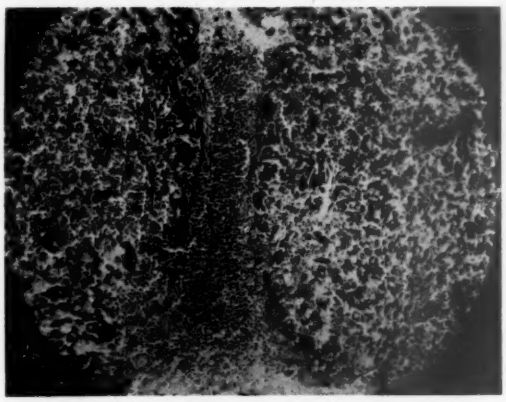

Fig. 8 (Case VIII).—Angioblastic type of meningioma (X900). Note the extreme vascularity. The vascular channels are lined by neoplastic cells or flattened endothelium. This appearance is in marked contrast to the benign type (Fig. 2—Case II) and post-operative therapy is necessary as the tumor has definite malignant properties and it will rapidly recur if not irradiated.

Comment: It has now been definitely established that all so-called meningiomata of the brain and cord are not benign and may have very malignant properties even though the lesion, when first operated upon, appears circumscribed and benign. The tumor in this patient (Case VIII) was of the angioblastic type and is closely allied to the sarcomata, both neoplasms arising from the embryonal mesoderm. Cushing and Eisenhardt[17] have classified meningiomata into nine distinct types; this particular tumor (Case VIII) falls into Type 4. They (the angioblastic meningiomas) may rapidly recur, especially if not irradiated post-operatively. In one of the three variant subgroups of Cushing and Eisenhardt's Type 4, all of the six cases reported recurred and there was only one survival five years after operation. They describe the tumor as a reticulin-forming angioblastic growth. It is a cellular neoplasm with numerous vascular channels lined by neoplastic cells or flattened endothelium.

All neuro-surgeons are familiar with cases of *intracranial* meningiomata which rapidly recur. Such a case has been seen in our Clinic recently (1937-8). At the first operation, a large circumscribed meningioma, the size of an orange, attached to the left petrous (venous) sinus, was entirely removed (by Dr. W. G. Crutchfield) except for a tiny nubbin of tumor at the venous attachment. The histological diagnosis was meningioma and no post-operative irradiation was given. Five months later, the patient showed undoubted evidence of recurrence and the old craniotomy wound was reopened. A large cauliflower-like mass—much larger than the original tumor—was found, an obviously malignant growth. It was subtotally removed and heavy post-operative irradiation administered as histological examination showed it to be of the angioblastic (sarcomatous?) type. He has remained free of all evidence of recurrence nineteen months after the second operation. It is important to remember, from a therapeutic as well as a prognostic standpoint, that seemingly grossly benign meningiomata of the brain or the spinal cord may rapidly recur after operation. Careful histological examination of the removed tumor is very important, in view of the *newer* knowledge concerning these neoplasms, before a final opinion as to post-operative management and prognosis may be given.

This case (VIII) also is an object lesson in demonstrating that not every patient with active tuberculosis of the lungs has a tuberculoma of the spine when signs of cord compression develop. Such a lesion—a tuberculoma—was considered to be a likely possibility in this case; its true nature was learned only at operation and by careful histological examination of the removed tumor.

Case IX. A white housewife, aged sixty, was admitted to the University of Virginia Hospital on December 8, 1938. She complained of severe pain in the left hip and leg and the lower back of two years' duration following a fall on the back. The pain was exaggerated by coughing and straining.

Examination disclosed a definite sciatic syndrome in the left leg. The left calf was atrophied and the ankle jerks were absent bilaterally even when the patient kneeled on a chair with the feet relaxed posteriorly; the knee jerks were of equal intensity and active. There was marked weakness of dorsiflexion of the left foot and numbness to pin-prick in the left leg and calf posteriorly. Bilateral jugular compression induced sudden pain in the left leg. Pelvic and rectal examinations were negative.

Lumbar puncture (L_{3-4}) disclosed normal dynamics but the reversed Queckenstedt test was positive for a block between L_3 and the caudal notch below. The spinal fluid protein was normal (40 mgm.). As orthopedic measures of several weeks' duration, including Buck's extension at home, had been of little help, descending lipiodol (3 cc.) was injected at L_{2-3}. This showed three distinct defects at L_{3-4}, L_{4-5} and $L_{5}-S_1$ interspaces (Fig. 9) when the patient's head was elevated.*

Fig. 9 (Case IX).—Roentgenogram of lumbo-sacral spine immediately after lipiodol injection (L_{2-3}), the patient being in the semi-erect position. The normal oil column, with the head of the patient elevated, always descends without indentation to a point definitely below the top of the sacrum. At operation, three adjacent hypertrophied ligamenta flava (L_{3-4}, L_{4-5}, L_5-S_1) were found (arrows) and removed with complete relief of all sciatic pain.

At operation (December 14, 1938) under one per cent novocaine and spinal anesthesia, a most unusual group of lesions was disclosed. There were three adjacent hypertrophied ligamenta flava corresponding to the defects shown in the lipiodol shadow. Each one was fully one centimeter in thickness, cartilaginous in consistency, and very adherent to the underlying dura. No herniation of a nucleus pulposus was seen. The dura was opened and the lipiodol removed; the cauda equina appeared normal. The histological examination of the removed tissue showed it to consist of hypertrophied ligamenta flava and fibro-cartilage.*

*The writer wishes to express his appreciation to Drs. V. W. Archer and George Cooper, Jr., Roentgenologists at the University of Virginia Hospital, for their interpretation of the roentgenograms, and to Drs. J. R. Cash and Frank Foote, of the University of Virginia Department of Pathology, who examined all the pathological material in the nine cases reported in this paper.

The patient made an uneventful convalescence with rapid subsidence of the left-sided sciatica in a few days. When last seen (September, 1939) she had had no recurrence of the sciatica and was engaged in her household duties.

Comment: The syndrome of low back pain and sciatica incident to a hypertrophy of the ligamentum flavum and (or) nucleus pulposus herniation is now well known to all neurologists, orthopedists and neuro-surgeons following the excellent paper in 1936 of Hampton and Robinson[18] on herniation of the nucleus pulposus, although occasional reports of these lesions had occurred in the literature[19, 20] before their paper. This case is unusual in that there were three adjacent definitely hypertrophied ligaments (at L_{3-4}, L_{4-5}, L_5-S_1). This has hitherto not been recorded in the literature, to our knowledge. Spurling, Mayfield and Rogers[21] should be credited with first (1937) clearly delineating the syndrome and the frequency of hypertrophy of a ligamentum flavum as a cause of low back pain and sciatica, although earlier reports had appeared.[22, 23, 24, 25]

It is impossible to tell definitely before operation whether one is dealing with a herniated intervertebral disk or a hypertrophied ligament; this is of little practical importance as the treatment is the same—laminectomy with removal of the offending extra-dural lesion. A report[26] from this Clinic and that of Dr. Lehman's (1938) of two *atypical* cases of hypertrophy of the ligamentum flavum showed that the usual syndrome is not always present. In one patient the lesion was in the lumbar region but there was no pain; a flaccid weakness of the legs was the outstanding clinical finding. In the second case, the lesion was in the thoracic region with the usual symptoms of cord compression in this area and constituted the only recorded case (to our knowledge) of hypertrophy of the ligamentum flavum not located in the lumbo-sacral region. Herniated intervertebral disks have been found in the cervical, thoracic and lumbo-sacral regions of the spine. The *early recognition* of the fact that certain cases of sciatica are due to a mass lesion of the lower spine constitutes, perhaps, the most important neurosurgical advance in the last four years and has undoubtedly resulted in prompt relief for many patients who, before that time, would have suffered months or years of severe recurring disability. It should be emphasized, however, that it has always been true, and will continue to be so, that most cases of sciatica are not neuro-surgical in nature but are due to disease of the lumbo-sacral and sacro-iliac joints and other primarily orthopedic conditions.

This case also demonstrates that a patient can have a mass lesion of the lumbo-sacral spine causing severe sciatica and yet have no increase in spinal fluid protein, emphasizing again the necessity for revision of a number of our former ideas concerning the diagnosis of mass lesions of the spine and its contents.

CONCLUSIONS

1. As stated in the introductory remarks of this paper, the main key to the diagnosis of a mass lesion of the spine and (or) its contents is to keep its possibility in mind when the differential diagnosis is considered in any individual patient.

2. It is evident that the clinician must be forever on the alert to detect *early* significant findings in patients who may have a tumor of the spine, in order to spare the patient needless delay in obtaining relief from his disability.

3. A number of unusual surgical cases are described together with certain pitfalls in diagnosis and methods of investigation of patients who may be harboring such growths. Several of the cases are pathological curiosities and have rarely if ever been reported in the literature (Cases I, III, VI, VII, VIII, IX).

4. A perusal of the nine case reports together with the pre- and post-operative findings makes it clear that the profession must revise certain long-held beliefs concerning the signs and symptoms, diagnostic tests, pathology, prognosis and treatment of tumors of the spine and its contents.

BIBLIOGRAPHY

1. Poppen, J. L., and Hurxthal, L. M.: Normal Cerebro-Spinal Fuid Dynamics in Spinal Cord Tumor Suspects. *J. A. M. A.*, 103:391-3, August 11, 1934.
2. Grant, F. C.: Spinal Cord Tumors. *Penna. M. J.*, 39:591-3, May, 1936.
3. Spurling, R. G., and Mayfield, F. H.: Neoplasms of the Spinal Cord. *J. A. M. A.*, 107:924-8, September 19, 1936.
4. Fay, Temple: Spinal Cord Tumors; Early Signs in Localization and Diagnosis. *Penna. M. J.*, 38:603-10, May, 1935.
5. Lehman, E. P.: Spinal Extra-Dural Cysts. *Am. J. Surg.*, New Series, 28:307-22, May, 1935.
6. Kelly, T. S. B.: Non-Parasitic Extra-Dural Cyst of the Spinal Canal. *Lancet*, 2:13-16, July 3, 1937.
7. Cloward, R. B., and Bucy, P. C.: Spinal Extra-Dural Cyst and Kyphosis Dorsalis Juvenilis. *Am. J.*

Roentg. and Rad. Therap., 38:681-706, November, 1937.

8. Geschickter, C. F., and Copeland, M. M.: Tumors of Bone, pp. 381-440, 1936. Published by Am. J. Ca., New York City.
9. Geschickter, C. F., and Maseritz, I. H.: Ewing's Sarcoma. *J. Bone and Jt. Surgery*, 21:26-39, January, 1939.
10. Rix, R. R., and Geschickter, C. F.: Tumors of the Spine, with a Consideration of Ewing's Sarcoma. *Arch. Surg.*, 36:899-948, June, 1938.
11. Kaufmann, E.: Pathology. Vol. III: 2024-30, 1929; P. Blakiston's Son & Co., Philadelphia.
12. MacCallum, W. G.: A Text-Book of Pathology, pp. 1045-6, 1937. (Sixth edition.) W. B. Saunders Co., Philadelphia and London.
13. Boyd, W.: A Text-Book of Pathology, p. 963, 1938 (Third edition), Lea and Febiger, Philadelphia.
14. Smith, L. W., and Gault, E. S.: Essentials of Pathology, pp. 324-328, 1938. D. Appleton-Century Co., Inc., New York and London.
15. Black, W. C., and Faber, H. K.: Blood Vessel Tumor of the Spinal Cord in a Boy Aged Nine Years. *J. A. M. A.*, 104:1889-91, May 25, 1935.
16. Cushing, H., and Bailey, P.: Tumors Arising from the Blood Vessels of the Brain: Angiomatous Malformations and Hemangioblastomas, 1928. C. C. Thomas, Springfield, Illinois.
17. Cushing, H., and Eisenhardt, L.: Meningiomas., pp. 43-7, 1938. C. C. Thomas, Springfield and Baltimore.
18. Hampton, A. O., and Robinson, J. M.: Roentgenographic Demonstration of Rupture of Intervertebral Disk into Spinal Canal After Injection of Lipiodol, with Special Reference to Unilateral Lumbar Lesions Accompanied by Low Back Pain with "Sciatic" Radiation. *Am. J. Roentgenol. and Rad. Therap.*, 36:782-803, December, 1936.
19. Stookey, Byron: Compression of the Spinal Cord Due to Ventral Extra-Dural Cervical Chondromas; Diagnosis and Surgical Treatment. *Arch. Neurol. and Psychiat.*, 20:275-91, August, 1928.
20. Mixter, W. J., and Barr, J. S.: Rupture of the Intervertebral Disk with Involvement of the Spinal Canal. *New England J. Med.*, 211:210-15, August 2, 1934.
21. Spurling, R. G., Mayfield, F. H., and Rogers, J. B.: Hypertrophy of the Ligamenta Flava as a Cause of Low Back Pain. *J. A. M. A.*, 109:928, September 18, 1937.
22. Elsberg, C. A.: Experiences in Spinal Surgery. *Surg., Gynec. and Obst.*, 16:117, 1913.
23. Towne, E. B., and Reichert, F. L.: Compression of the Lumbo-Sacral Roots of the Spinal Cord by Thickened Ligamenta Flava. *Ann. Surg.*, 94:327-36, 1931.
24. Puusepp, L.: Kompression der Cauda Equina das Verdickte Ligamentum Flavum: Tumor-Symptome, Operation, Heilung; *Folia Neuropath.*, Estoniana, 12:38, 1932.
25. Abbott, W. P.: Compression of the Cauda Equina by the Ligamentum Flavum. *J. A. M. A.*, 106:2129, 1936.
26. Meredith, J. M., and Lehman, E. P.: Hypertrophy of the Ligamentum Flavum, with a Report of Two Atypical Cases. *Surgery*, 4:587-96, October, 1938.

CYSTS OF THE MAXILLARY SINUS.*

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The literature on this subject is extremely meager and the classification somewhat confusing. This discussion will be limited to the more common types of cysts. Dentigerous cysts and cystic adamantinoma will be mentioned only for clarification of the subject.

Dentigerous cysts are rather rare and occur in the follicle of an unerupted tooth. A portion of the tooth is located in the wall of the cyst. Cystic adamantinoma are new growths.

G. W. McGregor gives the only complete classification and histologic description of the ordinary types of cysts of the maxillary sinus which could be found in the literature. He describes three types, namely, secreting cysts, dental cysts of inflammatory origin and mesothelial cysts. He believes that secreting cysts are produced not entirely by mechanical obstruction to the outlet of the gland, but also by a failure of the cilia of the convoluted tubules of the gland to carry off the secretion. The loss of function of the cilia is due to inflammation. This permits an over-filling of the gland and produces an increase in intra-glandular pressure. Cysts form much more readily in an edematous, loose type of mucous membrane than in a firm, fibrous type.

The increased pressure on the epithelial lining

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produces a stretching and thinning of the wall and, eventually, the cells become elongated instead of columnar in type. The pressure may continue until the cilia are destroyed and the epithelium lost. In this manner cysts are formed and they sometimes fill the maxillary sinus. Secreting cysts contain mucus.

Dental cysts are of inflammatory origin. The dental ridges, from which both the milk teeth and the permanent teeth develop, are formed from a ridge-like thickening of ectoblastic epithelium which appears along the margins of the oral cavity parallel to the labial grooves. After the milk teeth and subsequently the permanent teeth have developed from a series of papillae the dental ridges degenerate and should entirely disappear.

Sometimes, however, fragments of these structures remain and persist into adult life as epithelial rests. These structures remain dormant unless stimulated. An inflamed or carious tooth seems to be an ideal stimulus. Different types of epithelium may be reproduced from the cells of the epithelial rests. The contents of the cyst may be fluid or caseous, depending upon the preponderance of the particular type of epithelium lining the cyst wall. Frequently the cyst contains a clear, yellow fluid with cholesterin crystals and cast-off epithelial cells.

Mesothelial cysts occur in the edematous mucous membrane and are due to the accumulation of tissue fluids in the tissue spaces. The edema is due to a disturbance of the water-balancing mechanism caused by infection. This type of cyst has no true wall. It contains tissue fluids.

Fuller classified cysts of the maxillary sinus as follicular or dentigerous and dental, periosteal or root cysts, and reported two cases, one representing each type. He claims that dentigerous cysts occur more commonly in the lower jaw than in the upper and that they arise from some part of the follicle of a non-erupted tooth. Dental cysts, on the other hand, are seen more frequently in the upper jaw.

Small cysts of the maxillary sinus may not produce symptoms, but are frequently discovered on X-ray examination. Large cysts may cause pain from pressure and also a swelling on the cheek, roof of the mouth and floor of the nose. When puncturing the maxillary sinus it is not unusual to pierce a cyst and obtain a clear, yellow fluid.

DENTAL CYSTS—REPORT OF CASE

Mr. C. T., age twenty-one years, was first seen on February 21, 1940, in the Out-Patient Department of the Medical College of Virginia, complaining of swelling over the right cheek. About thirteen months prior to this, he had had an abscess of the second upper bicuspid tooth on the right side. The abscess drained spontaneously after about a week and rapidly subsided. A month later a slight swelling appeared on the right cheek bone. It was neither painful nor tender, but gradually increased in size. A thin, clear, yellow fluid containing cholesterin crystals was aspirated from the mass.

On March 25, 1940, the patient was admitted to Memorial Hospital. For about two weeks he had been having pain in the frontal region. This was more severe on the right side and radiated to the right ear. The pain was more or less intermittent in character and was intensified markedly when the patient leaned over. He described the pain as similar to a toothache, dull and boring. There was a hard elevated mass on the middle third of the upper right maxilla. The skin over it was freely movable and there was no tenderness nor redness. The mass showed as an elevation both in the floor of the nose and in the hard palate on the right side. Pressing on the mass gave a springy sensation similar to that elicited when pressing a ping-pong ball between the fingers. The right naris was partly occluded by extension of the mass under the nasal floor. There were no palpable lymph nodes referable to the mass.

All of the upper teeth were present and all appeared normal except the first right maxillary molar, which was badly broken down. The biting edges of the right upper canine and bicuspids were inverted from pressure on their roots.

As previously mentioned, the patient complained of headache, but had no dizziness, fainting, convulsions, twitchings, spasm, anesthesia, paraesthesia, ataxia or joint pains. Vision was normal. The cranial nerves were intact.

X-ray Report: "Postero-anterior and right lateral films of the skull showed complete clouding of a large right maxillary antrum with a little less density along the upper and outer margins. There appeared to be a large tumor mass filling the greater part of the right maxillary antrum, especially along its lower and anterior portions. Some of the tissue density pressed into the right naris. There was no widespread or localized destruction of the bony wall but some expansion of the anterior wall of the antrum, apparently due to pressure. Conclusion: Tumor of the right antrum, probably malignant."

Two days before operation 5 cc. of clear, yellow fluid were aspirated from the cyst through the inferior meatus. This revealed the presence of 80 mgm. of cholesterol per 100 cc. of fluid. No sediment was obtained by centrifuging the fluid, and no tissue cells were found.

Operative Technic—March 29, 1940: Patient had considerable bulging and thinning of the bone in the canine fossa. The usual incision for Caldwell-Luc was made, and the periosteum stripped back, exposing a large cyst covered by a very thin, paper-like layer of bone. The cyst was aspirated and one ounce of straw-colored fluid was obtained. With a knife an opening was then made through the bone and a large cystic cavity was exposed. This involved the entire antrum, which was enlarged in all diameters. The cystic cavity was covered with a thick lining membrane which was carefully dissected away in one piece. There was considerable thinning of the bony wall of the maxillary sinus, due, apparently, to pressure from the cyst. A large window was made under the inferior turbinate, the cavity packed with iodoform gauze and the wound closed with interrupted cat-gut sutures. No evidence of malignancy was found.

Pathological Report—"Gross Description: There is a fairly large collapsed, fibrous, thin-walled, cyst-like structure and a few fragments of cellular tissue.

Microscopic Description: The wall is made up of connective tissue densely infiltrated with plasma cells and lymphocytes and polymorphonuclear leukocytes in some places. It has an internal lining of stratified squamous epithelium which is preserved only in focal areas; in other places the squamous epithelium is replaced by granulation tissue. A few fragments reveal mucous glands and ducts and a few fragments of bone. No carcinomatous changes are identified.

Pathological Diagnosis: Squamous epithelial lined maxillary cyst with very marked chronic inflammation of the wall of the cysts."

March 26/40: Blood Rbc. 4,590; Hbg. 98%; Wbc. 9,900; Pmn. 50; Lymph. 46; Ret. 0; Blast. 0
Normochromic
Normogenic.

April 2/40: " " 4,360; " 98%; " 6,100; " 62; " 38.

From the history of abscess in the canine fossa, from the character of the contents of the cyst, and from the histologic structure of the cyst wall, the diagnosis of dental cyst was made.

The patient had an uneventful post-operative recovery and was discharged in about one week.

SUMMARY

1. Secretion, dental and mesothelial cysts, when small, are usually discovered only by X-ray examination.

2. They occur rather frequently in the maxillary sinus and vary greatly in size.

3. They are all infectious in origin and, therefore, may be a focus of infection.

4. Secreting cysts contain mucus; dental cysts contain either a clear, yellow fluid or caseous material, and mesothelial cysts contain tissue fluids.

BIBLIOGRAPHY

The Formation and Histologic Structure of Cysts of the Maxmillary Sinus, G. W. McGregor, M. B., *Archives of Oto-Laryngology*, November, 1928, Vol. 8, page 505.

Cysts of the Antrum, T. E. Fuller, M. D., *Arkansas Medical Society Journal*, Vol. 29, page 127.

TREATMENT OF ULCERATION OF THE FOOT IN ADVANCED ARTERIOSCLEROSIS.

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One of the most difficult therapeutic problems is presented by the patient with advanced arteriosclerosis where ulceration has occurred. Such a patient is usually fifty years of age or more and has had intermittent claudication for some months or years. Commonly there has been too close trimming of a toenail, the patient has cut a corn too deeply, or improperly fitting shoes have caused pressure necrosis. Frequent, too, is the history of over-exposure to cold —any of these factors may lead to the appearance of infection, and ulceration follows closely in its wake. At this stage the patient comes to the physician be-

cause of increasing and at times almost unbearable pain.

Examination of the affected part usually discloses a leg that is cold from the knee on down, the foot may be edematous and in the area of infection there is marked congestion. Rarely are pulsations palpable in the dorsalis pedis or posterior tibial arteries. Elevation of the leg quickly produces pronounced ischemia while, with the leg in a dependent position, the color returns slowly, gradually going on to deep rubor within two to four minutes. The ulceration itself may be irregular but the edges are usually smooth. Such an ulcer is frequently quite deep and frankly purulent with a wide zone of inflammatory reaction around it. The size of the ulcer is largely dependent on its location, i.e., an ulcer on the dorsum of the toe is usually small while an ulcer on the heel or over the metatarsal-phalangeal joint on the medial border of the foot is likely to be large.

TREATMENT

Treatment of such a case must be undertaken from several angles. In the first place, the patient must have—

Relief From Pain. This is important from the physiologic as well as from the subjective viewpoint, for pain leads to spasm and spasm cuts down an already seriously impaired circulation. Morphine is the drug of choice for the relief of pain. One should use discretion as to the amount and frequency of its administration but a surprisingly small amount will go a long way.

Rest is next in order for the successful management of these cases. Bed rest, with possible bathroom privileges, is the best regimen. During the acute phase of the disease it is unwise to treat these patients as ambulatory cases. The period of rest should last from one to four weeks depending on the progress of the case.

Supportive Measures. As for cardiac decompensation, control of diabetes, dietary management, etc., are essential where the indications are present.

Specific Treatment of the leg is a subject of much confusion. Enthusiasts who make claims for passive vascular exercise (suction-pressure therapy) advocate its use regardless of the infection. Suction-pressure therapy will help to relieve pain but in my experience the ulcer does not have any great tendency to heal. In fact, I have observed over a period of two or three weeks steady increase in the size of the ulcer despite the fact that during this period the patient was receiving suction-pressure therapy.

Postural Exercises, or Buerger's exercises to stimulate the collateral circulation, are definitely of value where they can be used without producing an acute exacerbation of the pain. Individualized prescription for the exercises is most important if the major therapeutic benefit is to be derived from them. No routine prescription is suitable in all cases, nor does the prescription in any one case remain the same indefinitely. The exercises consist of three parts: (a) elevation, (b) dependent position, and (c) horizontal position. Elevation should be no longer than the time necessary for the part to become ischemic, usually one minute or less. The dependent position should be long enough for the part to develop and maintain rubor for one minute; this may require from three to five minutes. The horizontal position may be any desired time but should be at least equal to the sum of the other two. These three positions, in the order given, should be repeated for at least an hour each time with a minimum of three hours, in the twenty-four, being devoted to these exercises.

Intermittent Venous Occlusion is perhaps the most effective of all the treatments thus far. This may be considered as a passive means of postural exercise. Intermittent venous occlusion may be obtained in two ways, either by a machine designed for that purpose, or by the use of an ordinary blood pressure apparatus. Obviously, the machine is preferable where circumstances permit, since the patient does not have to concentrate on the job in hand all the time the treatment is in progress. Furthermore, one can be more certain as to the pressure attained and the proper spacing of pressure and release intervals. It is feasible to treat both legs at once with the automatic device. However, for the individual without the means of obtaining such a machine, just as satisfactory results may be achieved by proper use of manually operated blood pressure apparatus. In either event, the most desirable period of application for intermittent venous occlusion appears to be *pressure* for *two minutes, release* for *four minutes.* The pressure should be within about ten millimeters of mercury of the diastolic pressure, or not to exceed eighty millimeters of mercury. The two minute on, four minute off cycle should be repeated for at least an hour at a time and there should be a minimum of three hours a day devoted to this treatment. The patient lies recumbent while the treatment is going

on. In the acute case it is sometimes advantageous to use the apparatus continuously for twenty-four to forty-eight hours.

The results of intermittent venous occlusion therapy are, for the most part, very gratifying. I have observed five cases ranging in age from forty-nine to seventy-eight years. (Three of these patients had increase in the size of the ulcer while receiving suction-pressure therapy). All five patients have had complete healing or are definitely on the road to recovery following the institution of intermittent venous occlusion therapy. The process of healing is, of course, very tedious and the patient must be informed of this fact and told that it will probably require a number of months for the ulcer to disappear. Oscillometric studies have shown distinct improvement in circulation in three of these cases where the treatment has been continued for four or more months. It is my firm belief that intermittent venous occlusion represents a distinct advance in the treatment of ulceration in advanced arteriosclerosis.

CHRONIC ATONIC DILATATION AND HYPERSECRETION OF THE STOMACH SUCCESSFULLY TREATED WITH INSULIN.*

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In the domain of internal medicine significant advance has recently been made in the treatment of disease. This has been mainly along three lines, namely: 1. Chemo-Therapy; 2. Specific Sero-Therapy; and 3. Hormonal-Therapy.

Hormonal-Therapy has the strongest appeal to the physician because, after prevention, it is the most rational form of treatment he may use.

This is so because it is a form of effective intervention as near the site of the disturbance as is possible, and represents an immediate reversal of an abnormal process.

Many examples might be given illustrating each of these three forms of therapy, but here will be cited only one instance of the rather unusual, but successful, application of hormonal-therapy in the management of a gastro-intestinal disease.

A woman, forty-seven years of age, considered herself well until January, 1939, when she had an attack of vomiting twenty-four hours after eating chocolate ice cream, and then tasted and recognized the food eaten on the preceding night.

Thereafter she tasted all food long after eating, felt a weight and splashing in the abdomen—which was worse on standing—and had gaseous distention and belching.

From January to April she lost weight—from 146 to 122 pounds.

On April 11, the uterus, a cystic ovary and the appendix were removed.

Following this, there was complete loss of appetite, she no longer tasted food after eating, but felt sensitive about the abdomen, even to the touch of clothing, and was further distressed by rumbling and gurgling in the abdomen.

At the end of four weeks she was discharged from the hospital, with a further decrease in weight—to 112 pounds.

When first seen, on June 26, her weight was 109 pounds, and since her discharge she had been having delayed vomiting; that is, after an interval of two or three days of increasing discomfort and nausea, she would vomit several times in the same day, without relation to the time of eating or the kind of food taken, a vast amount of dark green, bitter, not sour fluid, without gross food particles; then there would occur a period of relative comfort and ease, of from one to three days' duration, during which time she was definitely hungry. This would again be followed, in two or three days, by the vomiting of a large amount of the same kind of fluid.

Previous clinical history seemed to bear no relation to the present complaint and she reported that since her operation she had been X-rayed and was told that her stomach was not obstructed.

The only significant physical findings were: weight deficiency of about thirty pounds; a large protuberant lower abdomen, and, obviously, a great deal of fluid in the stomach.

From the Department of Medicine of the George Washington University School of Medicine.

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Fluoroscopic examination without a barium meal showed a fluid level high in the fundus of the stomach.

1700 cubic centimeters of dark greenish fluid was aspirated through the stomach tube. This had a total acidity of 50, free hydrochloric acid, 10, and a trace of occult blood. There was only a small sediment of finely divided food particles which under the microscope was shown to be starch, meat fibers, and fat globules.

Fluoroscopic examination after the usual barium meal showed a very low atonic, moderately large stomach, without deformity or any evidence of morphologic pathology.

At the six-hour period, there was about two ounces of the barium meal still in the stomach. The remainder had passed out and was normally distributed in the terminal ileum.

At twenty-four hours, there was still about one-half ounce of barium in the stomach and the remainder was normally distributed in a low but otherwise normal colon.

The test breakfast showed no significant abnormality.

On dietetic management the patient passed a week without vomiting, but then began again to have increasing discomfort and nausea. Seven days later, 1,450 cc. of fluid was aspirated, and a week later 2,500 cc. was removed at 9 A. M., when she had already vomited 1,500 cc. at 5 A. M. and had not eaten or drunk anything in the four-hour interval.

Without unduly belaboring the diagnosis and differential diagnosis, it may be simply stated that, with this syndrome occurring after a necessarily extensive operation on the pelvic organs, with positive evidence of marked hypersecretion with gastric atony, and with the absence of deformity or obstruction of the stomach or bowels, a diagnosis was made of gastric atony, hypersecretion, and dilatation of the stomach.

The treatment now instituted consisted of rest in bed, no fluid food or medicine by mouth, 1,000 cc. of 10 per cent dextrose in normal saline solution intravenously twice daily, and daily complete aspiration of the gastric secretion. Insulin was given in increasing doses, until the patient was taking 10 units three times a day.

After four days a small amount of solid food was allowed, and in three days more, a full diet given and the intravenous dextrose and salt solution discontinued.

Aspirations were continued once daily for a week, then every other day for a week, and then again each day for three days, when the total residue aspirated was from 30 to 65 cc.

The patient was discharged August 3, on full diet, taking 10 units of insulin three times a day, which was continued until November 15. On November 29, there had been no recurrence of symptoms, the stomach had been found empty on repeated weekly aspirations and the patient weighed 137 pounds.

Special diets, fasting, and gastric lavage had been previously used in this case without permanent benefit.

From the beginning of the use of insulin for the control of diabetes mellitus, it was known that full doses would provoke marked hunger sensation, and it has been used to promote appetite and increase assimilation in cases of malnutrition.

Its application to the relief of atonic dilatation of the stomach is based upon the observation, made by Carlson,[1] that the sensation of hunger was associated with increased gastric tone and motility, and also of Butalao and Carlson[2] who showed that insulin originated gastric motility and dextrose injections abolished it.

Then, La Barre[3] showed that action was through the vagus nerves, by demonstrating in cross circulation experiments that, when hypoglycemic blood from one animal was passed through the cerebrum of a second, gastric function was augmented in the second animal, even though all connection with the cerebrum was severed except the vagus nerves. Further evidence that the effect is mediated through the vagus nerves is manifested by its prompt abolition on the injection of atropine.

The practical and successful application of the above described physiological action of insulin has already been reported by the author[4] in the relief of acute post-operative dilatation of the stomach.

It is suggested that this physiological effect of insulin upon the tonus of the gastro-intestinal tract might properly find even a more extensive application in the prevention and treatment of the many mild post-operative atonic disturbances of that system.

REFERENCES

1. Carlson, A. J.: The Relation Between the Contractions of the Empty Stomach and the Sensation of Hunger. *Am. Jour. Phys.*, No. 31, 1913, p. 175.

2. Butalao, E., and Carlson, A. J.: Influence of Experimental Changes in Blood Sugar Level on Gastric Hunger Contraction. *Am. Jour. Phys.*, No. 69:107, June, 1924.

3. La Barre, J.: Les Functions Contractiles et Secretoires de l'Estomac en Rapport avec les Vareations du Metabalisme Glucidique. *Bull. Acad. Roy. Med. Belgique*, 11:598-651, 1931.

4. Mallory, William J.: Acute Post-Operative Gastric Dilatation Treated with Insulin. *Virginia Medical Monthly*, December, 1933.

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FOREIGN BODY SIMULATING GASTRIC CARCINOMA.*

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This case report and summary is presented because the condition is believed to be sufficiently rare to merit mention, and because previous contributions to the subject of false gastric tumors have been few.

The patient is a sixty-three-year-old man who, except for an old history of pulmonary tuberculosis (arrested for seventeen years), had been in good health until the night of February 14, 1939, when he suddenly suffered excruciating, cramp-like lower abdominal pain which persisted for two hours. There was no antecedent history of disturbances in digestion or alimentation, and the patient had been well until the sudden onset of colicky pain. At the time, the temperature was 98°, pulse 70, blood pressure 180/100. Examination of the head was noncontributory. The lungs were clear except for minimal evidence of fibrosis at both uppers. The heart was not enlarged to percussion; there were no thrills, shocks, or murmurs; and the sounds were of good quality and intensity. Neurological findings revealed no abnormality. Interest was, of course, centered in the examination of the abdomen, but here there was only a generalized voluntary spasm and moderate tenderness throughout. There was no rigidity, and no masses could be palpated. The liver, kidneys, and spleen could not be felt, and the area of hepatic dullness was not diminished. Perforation of a hollow viscus was first suspected, but surgical consultation did not confirm this impression, and operative interference was not advised. The patient received expectant treatment, with alleviation of his symptoms.

Two days later, however, he vomited about 500 cc. of changed blood, and shortly afterward developed signs of a partial pyloric obstruction, with recurrent vomiting. He was hospitalized at this time, and placed on a Lenhartz diet, which was taken well until February 19th, when there appeared an elevation in temperature to 103°, tachycardia, and tachypnea, accompanying signs of early consolidation of the left lower, and right middle and lower lobes of the lungs. Sputum studies showed an abundance of streptococci, few pneumococci. Throughout the course of the pneumonia, which lasted ten days, and was thought to have been caused by aspiration of vomitus, the patient received oxygen therapy, and a Wangensteen decompression apparatus was employed to relieve the partial pyloric obstruction. During this period, the return contained changed blood, and occasionally, fresh blood. The vomitus showed no free HCl, and a total acidity of 26°. The stools showed occult blood consistently. The pneumonia was further complicated on the day after the onset by an acute cardiac dilatation and transient auricular fibrillation, both of which were controlled through rapid digitalization.

Because of the pyloric obstruction which persisted throughout the pneumonia, it was considered necessary to provide means of feeding other than the parenteral fluids which had been the patient's subsistence since February 19th, for even though the acute infection showed signs of clearing, the patient's course appeared to be downhill. The blood chemistry findings at this time showed a fall in chlorides (429 mgm. per cent), and, in spite of three blood transfusions, a definite hypoproteinemia (total proteins: 5.16 Gm.; albumin: 2.44 Gm.; globulin: 2.72 Gm.).

Accordingly, as soon as the patient's condition permitted surgical intervention, on March 4th, an exploratory operation was done under local anesthesia. Examination of the pylorus was unsatisfactory, but the operator remarked that no gross lesion could be felt. A jejunostomy was performed, and the patient returned from the operating room in good condition.

*Read before the Norfolk County Medical Society, February 19, 1940.

On the day of operation, his temperature rose to 101°, the next day to 103°, but by the fifth day had returned to normal limits, and thereafter his post-operative course was uneventful. On March 5th, the day after operation, pre-digested feedings were begun through the jejunostomy tube, and at the end of a week, the patient's daily intake averaged 3,000 calories, including 100 Gm. of protein, and 3,000 cc. of fluid. The total serum proteins, which had fallen as low as 4.76 Gm., began to rise, and two weeks after operation were 6.05 Gm., with a normal albumin-globulin ratio. On March 7th, three days after the jejunostomy, the Wangensteen apparatus was removed, with no resultant abdominal discomfort, pain, distention, nausea, or vomiting, and the patient was able to take water by mouth. Five days later, a liquid diet was begun in addition to the jejunal feedings; and on the 11th post-operative day he found it possible to take a soft, smooth, bland diet without difficulty. The symptoms of partial pyloric obstruction had disappeared.

On March 17th, a gastro-intestinal series (Figure 1) was made, with the following interpretation:

Fig. 1.

"Examination of the stomach shows a slight regurgitation of the barium into the esophagus. There is a large, irregular-shaped filling defect on the lesser curvature of the stomach, involving the cardia, and extending downward to a point within one and one-half inches of the pyloric ring. The duodenal cap is well outlined. The stomach is almost completely empty at five hours. Impression: Gastric carcinoma."

This opinion coincided with the clinical impression formed after considering the original hematemesis, prolonged gastric bleeding, pyloric obstruction, and the absence of free HC1.

Because of the appearance of the lesion, it was agreed by those who had followed the patient's illness that further surgery would be ill-advised, and, accordingly, the patient was discharged from the hospital on March 24, 1939, with the diagnosis of inoperable carcinoma of the stomach. At that time, his only complaint was that of a sensation of fullness in the epigastrium after meals, a symptom which had been present since he had been placed on the diet.

On March 28th, four days after discharge, the patient suddenly regurgitated a piece of bone (Figure 2) which was a little under a centimeter in diameter,

Fig. 2.

and from that time on his symptom of post-prandial epigastric discomfort disappeared. It later developed that the bone was of a type commonly found in steaks; also, that the patient had, on the day of the onset of his illness, eaten steak, but he could not recall having experienced any pain or difficulty in swallowing on that occasion.

At the request of the patient, arrangements were made to have him undergo further study by Doctor Julius Friedenwald of Baltimore. After a few days of bed rest in that city, another gastro-intestinal series was done, which was read as follows (Figure 3):

"The esophagus is normal. The stomach shows no

Fig. 3.

organic lesion, although the pylorus is spastic. Gastric motility is normal. The duodenal cap is regular. The cecum and colon are normal."

A third gastro-intestinal series, at the end of six weeks, again showed no organic lesion in the stomach. Within three months after the illness had terminated, the patient had gained over forty pounds in weight, and examinations during the past year show no evidence of gastro-intestinal disturbance, or of malignancy.

COMMENT

Standard reference books devote little space to the subject of false gastric tumors; and a review of the literature reveals but a few isolated case reports.

Foreign bodies in the stomach have led to erroneous diagnoses of peptic ulcer in many instances, but most of these cases have occurred in younger people who have had psychopathic traits. Goldschmidt[1] reports the case of a young man who was admitted to the hospital complaining of severe epigastric pain, and who later had hematemesis and tarry stools. A diagnosis of gastric ulcer was made, but X-ray study showed that the fundus of the stomach was filled completely with a large mass of pins, nails, and coins, which was removed subsequently by means of a gastrostomy. Pauchet[2] and Pauchet and Hirchberg[3] contribute a total of three patients, all women, in whom sewing needles had been found imbedded in the gastric walls at operations performed for peptic ulcer. Two of the three women had major psychoses, and had swallowed the needles during periods of acute depression. Duroselle[4] reports a case which is interesting because in this instance a tumor formation, secondary to a foreign body, was actually found at operation. Histologic examination of the structures removed showed that the tumor was a neoformation and that its composition differed from that of the gastric wall. It was formed by an edematous fibrillary connective tissue in which there were some lymphoid nodules and bundles of muscle fibers which belonged to the superficial layer of the muscularis mucosae, and which were dissociated by the newly formed cells. There was no sign of malignancy, and the tumor was a chronic granuloma containing many vessels with numerous eosinophils. At one part of the tumor there was a porous body into the alveoli of which giant cells and macrophages had penetrated. This foreign body, probably a fragment of sponge, was manifestly the cause for the formation of the chronic granuloma. An extensive operation was performed in this case because the surgeon thought the tumor a malignant one. The postoperative result was favorable.

CONCLUSION

In considering the case presented, it seems clear that the presence of the bone, with the trauma incident upon its passage through the esophagus and stomach, produced the clinical picture previously described. The bone was in the stomach for a relatively short time, probably too short to permit the formation of a chronic granuloma; but it is apparent that before the foreign body was dislodged, sufficient distortion, contraction, and spasm of the stomach had been produced to give the bizarre picture seen on the first X-ray series. When sufficient time had elapsed after the expulsion of the bone to allow the stomach to return to its normal state, a normal X-ray picture was obtained.

BIBLIOGRAPHY

1. Goldschmidt: *Zentralbl. f. Chir.*, p. 465, February 19, 1927.

XUM

2. Pauchet: *Bull. Acad. de Med.*, 95:470, 1926.
3. Pauchet and Hirchberg: *Arch. des mal. de l'App. Dig. et de la Nut.*, 17:380, 1927.
4. Duroselle: *Bull. et Mem. Soc. Nat. de Chir.*, 60:346. 1934.

Wainwright Building.

VENESECTION IN PULMONARY EDEMA:

Case Report With Discussion of Diagnosis, Etiology, and Treatment.

GEORGE GEYERHAHN, M.D.,*
Wilmington, North Carolina.

The purpose of this paper is to recall the use of venesection in pulmonary edema. Venesection has been used in different diseases, but it was forgotten, or not favored as treatment, over some period of time. It was introduced again by Willius and Doerfler. These two point out that increased venous pressure is indication for venesection. Decompensation of the right heart will be relieved due to this. We have found venesection very efficacious in this case and also wish to give a mechanical explanation for venesection, as well as to show that there is scientific, theoretical, and practical indication for such.

CASE REPORT

Watts Hospital, No. 17183. A.T. White, male, aged thirty-one.

HISTORY: Patient was referred to the hospital with a diagnosis of pneumonia. His condition was too critical for an intelligent history.

Chief Complaint. Shortness of breath for two days. Pain in the right chest.

Past History. Patient has had infectious arthritis since the age of twenty-two. Has had tonsillectomy and extraction of all of the teeth. There has been no history of nocturia, but the patient has had dysuria during the present illness. Patient has a long standing history of alcoholism.

Present Illness. Patient dates the onset of the present illness at one week ago when he developed a cold. The cold cleared promptly, but there was a residual generalized weakness which has persisted. Two days ago he noticed some shortness of breath which became progressively worse. During the past twenty-four hours there was severe pain in the right chest which was relieved by lying on the right side. There was no cough or chills during this interval.

PHYSICAL EXAMINATION: Temperature 99, pulse 135, respiration 35.

The patient was a very cyanotic, rather obese-appearing white male lying on his right side, in acute distress. The skin was cold and wet with perspiration. The eyes showed slight exophthalmus.

Chest. Examination was difficult due to extreme dyspnoea. The thorax was barrel-shaped and hyperresonant to percussion. There was questionable dullness over the right middle lobe near the axillary line. Rales were present throughout with expiratory difficulty. Breath sounds were suppressed in the region of the right middle lobe. The heart was within normal limits of size on percussion. No murmurs were heard.

Abdomen. The abdomen was distended. The liver extended three fingers breadth below the costal margin. There was no evidence of fluid.

Extremities. The lower extremities were edematous.

Impression on admission:

1. Bronchial asthma. 2. Fluid in right pleural cavity. 3. Beginning cirrhosis of the liver.

LABORATORY FINDINGS: Urine specific gravity 1.021, acid reaction, heavy cloud of albumin, many white blood cells, occasional red blood cells and a few hyaline casts. Blood count showed hemoglobin 100 per cent (Sahli), white blood cells 20,000, polymorphonuclear leucocytes 94 per cent, and lymphocytes 6 per cent. Urea nitrogen was 32, blood urea 68.4, creatinine 3, and glucose 167. (Patient had received glucose intravenously.) CO_2 combining power was 68 vol. per cent. The Wassermann and Kahn were negative.

X-ray findings were those of diffuse clouding throughout both lungs, slightly more on the right. The radiological impression was bronchopneumonia.

COURSE IN HOSPITAL: The prognosis on admission was extremely grave. Patient was immediately given heart stimulants and put in an oxygen tent. Fifty cubic centimeters of 50 per cent glucose were given intravenously. After slight improvement a

*Formerly member of Medical Resident Staff, Watts Hospital, Durham, N. C.

course of sulfapyridine therapy was started. On the second hospital day the patient became orthopneic. The temperature rose to 100° F., pulse 140, respiration 40. Blood-tinged sputum was expectorated. The patient apparently had pulmonary edema. A venesection was done with removal of 450 cc. of blood. There was immediate improvement, both clinically and by physical examination, after 50 cc. had been withdrawn.

Supportive treatment was continued by the use of atropine, morphine, oxygen and digifolin. Magnesium sulphate was given every hour until free purgation had been effected. He also was placed on a nephritic diet, which rendered, 70 gm. protein, salt free-high carbohydrate intake.

On the fourth hospital day the patient's respiration again became labored. Blood pressure rose to 190/140. A second venesection was done with removal of 300 cc. of blood. There was again immediate improvement with no subsequent relapse. After two days the chest was clear both as to physical examination and X-ray. The urine continued to show occasional hyaline and granular casts. Electrocardiogram showed evidence of coronary thrombosis. The patient was discharged from the hospital after twenty-eight days, in good condition except for a low grade, but apparently subsiding, nephritis.

MECHANICS OF VENESECTION: When blood is removed from the blood stream it must be replaced by tissue fluids, as there should be a certain volume of circulating fluid. Tissue fluids, of course, will be taken from the body in regions where it is least needed. Pulmonary edema is a condition due to too much fluid (blood and serum) in the lungs. Because fluid is on the surface of the epithelial cells, gaseous exchange in the lungs is much decreased. The blood volume is increased in the capillaries of the lungs and slows down the circulation. If the blood is to be taken from the vein it will be replaced, of course, from the regions where fluid is in excess. Venesection changes the venous pressure, never arterial pressure; help is due to relief of the right heart.

SUMMARY: This patient had pyelitis, pyelonephritis, and concurrent nephrogenic hypertension. The nephritis led to generalized anasarca with pulmonary edema. The high blood pressure caused decompensation of the heart, producing congestion of the lungs following pulmonary edema, and possibly a congestive pulmonary infarct in the right middle lobe. Therefore, the pulmonary edema had two etiological factors in this case—kidney and heart.

It was noted that venesection relieved the patient after 50 cc. of blood was withdrawn. The findings of relief with the withdrawal of so small an amount of blood leads us to believe that this could be used as a therapeutic test. This small volume will not harm any patient even if the diagnosis of pulmonary edema should be wrong.

REFERENCES

1. Proc. Meeting of Staff in Mayo Clinic, Willius: 139, February 26, 1936.
2. Hans Doerfler, *Muenchner Med. Wochenschrift* 84: 1162-1164.

James Walker Memorial Hospital.

PERFORATED PEPTIC ULCER AND RECOVERY WITHOUT OPERATION.*

HENRY G. HADLEY, M.D.,
Washington, D. C.

There are many cases of perforated peptic ulcer which, by the time the diagnosis has been made and the patient hospitalized for surgery, show evidence of subsidence of symptoms. Many of these refuse operation and, as noted by Singer,[1] often appear to have exercised good judgment as recovery followed in a large proportion. He reported a series of forty spontaneous recoveries in eighteen months in Cook County Hospital, differentiating free from walled-off perforation by board like resistance of both recti, pain referred to the shoulder, obliteration of the liver dullness, collapse symptoms, and the presence of free air demonstrated by X-ray film.

Free air under the diaphragm is not present in all peptic ulcer perforations. Johnson found this sign in 83 per cent of forty-two cases. The percentage of spontaneous recoveries varies in different reports from 1 to 5 per cent. Speck[2] stated that 1 to 2 per cent recover without operation. These figures do not show the total number that might recover without opera-

tion, as surgery is performed in nearly all cases.

Hall[3] reported a case of perforating gastric ulcer followed by peritonitis which recovered without operation. Other recoveries without operation are reported by Ayerza,[4] Popper,[5] and Du Pasquier.[6]

CASE REPORT

C. J., male, white, aged forty-two, a pile driver by occupation, was awakened on September 29, 1938, at 5:00 A. M., with a sharp pain in the upper abdomen, radiating to the right shoulder. He swallowed sodium bicarbonate dry and later drank whiskey which failed to relieve the distress. He went to work but, when pain continued, sought the aid of the company physician, who administered morphine. He returned home in acute distress and called the nearest physician who found board-like rigidity of the abdominal muscles and obliteration of liver dullness. He refused surgery at that time. He came under my personal observation ten hours after the perforation had occurred, at which time the pain had somewhat subsided, but the board-like rigidity and the changes in liver dullness were still present. His temperature and pulse were normal, and he appeared to be otherwise in good condition. He was treated and the next day moved for fluoroscopic examination. One-half inch of free air over the surface of the liver, thirty-four hours after perforation, was seen in the upright position. No further symptoms developed. Barium meal given later showed a deformity of the duodenal cap and no abnormality of the stomach.

CONCLUSION

This is a proven case of peptic ulcer perforation which recovered without operation. Where it is certain that the ulcer has spontaneously closed and that no more leakage is occurring operation need not be performed.

BIBLIOGRAPHY

1. Singer, H. A.: Med. Clinics N. Am., Philadelphia, July, 1927, XI, 63-77; Arch. Int. Med., Chic., June, 1930, XLV, 926-947.
2. Speck, W.: *Beitr. z. Chir. klin.*, Tubing, 1923, CXXIX, 537-594.
3. Hall, W. W.: *Brit. M. J.*, London, 1892, Vol. 1, p. 64.
4. Ayerza, L.: *Semana Med.*, December 15, 1927, 2, 1657-59.
5. Popper, H.: *Deutche Med. Wchnschr.*, Leipz. u. Berl., 1915, 41, 1034-1036.
6. Du Pasquier G.: *Rev. Med. De La Suisse*, Rom., 48: 785-794, September 25, 1928.

1252 Sixth Street, Southwest.

Public Health Statistics

I. C. RIGGIN, M. D.,
State Health Commissioner of Virginia
Richmond, Virginia

The report of the Bureau of Communicable Diseases of the State Department of Health for September, 1940, compared with the same month in 1939, and for the period of January through September, 1940, compared with the same period in 1939, follows:

	SEPT. 1940	SEPT. 1939	JAN.-SEPT. 1940	JAN.-SEPT. 1939
Typhoid and Paratyphoid Fever	59	80	189	391
Diarrhea and Dysentery	418	422	1,585	3,888
Measles	42	35	3,388	10,732
Scarlet Fever	62	98	1,161	931
Diphtheria	45	197	405	707
Poliomyelitis	79	12	122	33
Meningitis	3	6	58	49
Undulant Fever	5	3	18	20
Rocky Mountain Spotted Fever	3	11	40	47
Tularaemia	8	8	37	51

FRAMES AND SPLINTS FOR INDIGENT INFANTILE PARALYSIS PATIENTS

The National Foundation for Infantile Paralysis has manufactured and has on hand a supply of Bradford Frames and Toronto Splints for distribution on a loan basis to any community that may be in need of them. They are available to any physician or hospital for use in treating indigent infantile paralysis patients.

Orthopedic surgeons who have used this equipment believe that it is superior to anything previously available for fixation and protection of affected muscles during acute and sub-acute stages of the disease.

The State Health Department has on hand a supply of booklets describing the use of the splints and frames. Upon request this booklet will be mailed to any physician or hospital in the State desiring this equipment.

During the last six weeks twenty Virginia children have been provided with these appliances through the generosity of the Foundation. It is believed that this is a step forward in reducing the crippling after affects of this dreaded disease.

The Council
Medical Society of Virginia

The Council of the Medical Society of Virginia met at the Society's offices in Richmond, Tuesday, October 8, 1940, at 11:00 a.m. Present: Dr. Hugh H. Trout, President; Dr. Walter B. Martin, President-Elect; Drs. Griffin Holland, Julian L. Rawls, Roshier W. Miller, C. E. Martin, John Hundley, Jr., Alex. F. Robertson, Jr., J. E. Knight, and C. B. Bowyer, Councilors; Dr. Karl S. Blackwell, first vice-president; and Dr. Wyndham B. Blanton, editor. Of the incoming officers invited to attend, those present were: Drs. J. Morrison Hutcheson, James L. Hamner, Andrew D. Hart, Jr., and W. L. Powell, councilors, and Dr. H. B. Mulholland, vice-president.

Dr. Trout presided and asked the pleasure of the Council with regard to the minutes of the last meeting on July 29th. Dr. Robertson moved that they be approved. This was seconded, following which Dr. W. B. Martin said he thought the section with regard to Medical Preparedness, at the top of the second column on page 572 of the September MONTHLY, needed clarification as to the personnel of the State Committee, its chairman, and the State Representative, it being his impression that the appointment of the State Representative would have to be re-affirmed by each administration. After a free discussion, in which it was brought out that the State Representative was appointed for the period of emergency and each year the Council is to be the Committee on Medical Preparedness with each Councilor as a key man responsible for every county in his district, Dr. R. W. Miller offered the following motion:

Resolved: First, that the Council reaffirm its action in recommending to the American Medical Association the appointment of Drs. Hugh Trout and Walter B. Martin as State Representative and alternate representative, respectively, of the Medical Preparedness Committee.

Second, that the Council be charged with all matters pertaining to Medical Defense during the period of emergency.

Third, that all matters relating to Medical Defense within the State of Virginia shall be referred by the State Representative to the President and Council of the Medical Society of Virginia; and

Fourth, that all minutes in conflict with the foregoing shall be rescinded.

This was seconded by Dr. Hundley and carried.

Dr. Robertson said he felt the services of the Society's office should be available to the State Representative at all times, to which Dr. Martin, incoming president agreed. It was further felt that the Governor of the State should be advised of this Committee on Medical Preparedness, offering cooperation with him at any time.

The President next called for a statement as to the finances of the Society, and Dr. R. W. Miller, chairman of the Finance and Budget Committee, read figures from the auditor's statement as given below. He said he had talked with the auditor who had made the statement that an organization of this type should have a reserve of $20,000 to $25,000 and he hoped the next administration would endeavor to conserve resources to this end.

Auditor's Report—October 1, 1939, Through September 30, 1940

TO THE OFFICERS AND COUNCILORS,
MEDICAL SOCIETY OF VIRGINIA,
RICHMOND, VIRGINIA.

GENTLEMEN:

We have made an examination of the books of account of the Medical Society of Virginia, Richmond, Virginia, for the fiscal year ended September 30, 1940, and now present our report consisting of the following statements and explanatory comments:

"A" Balance Sheet.

"B" Statement of Income and Expense.

Comments

The assets, liabilities, and surplus of the Society at September 30, 1940, are set forth in the Balance Sheet, Exhibit "A". A summary thereof, compared with that at the close of the prior year, shows:

	9-30-40	9-30-39	Increase Decrease*
ASSETS:			
Cash	$14,476.02	$13,677.55	$ 798.47
Accounts Receivable	1,508.56	1,825.81	317.25*
U. S. Savings Bonds—At Cost	2,400.00	525.00	1,875.00
TOTALS	$18,384.58	$16,028.36	$2,356.22
LIABILITIES:			
Accounts Payable	530.27	659.03	128.76*
SURPLUS:			
Excess of Assets over Liabilities	17,854.31	15,369.33	2,484.98
TOTALS	$18,384.58	$16,028.36	$2,356.22

The Income and Expenses for the fiscal year ended September 30, 1940, are shown in detail in Exhibit "B", prepared on cash receipts and disbursements basis. The operations for both the current and preceding year are given in condensed form in the following tabulation:

	YEAR ENDED 9-30-40	9-30-39
INCOME:		
Medical Society	$ 5,538.85	$ 5,333.66
Medical Monthly Publication	11,826.45	12,011.92
TOTALS	$17,365.30	$17,345.58
EXPENSES:		
Medical Society	$ 5,086.10	$ 5,112.67
Medical Monthly Publication	9,605.73	9,489.39
TOTALS	$14,691.83	$14,602.06
SURPLUS INCOME FOR YEAR	$ 2,673.47	$ 2,743.52

The record of cash transactions for the year was checked in detail. Receipts were uniformly deposited in banks for the account of the Society, and disbursements were supported by satisfactory vouchers. Balances on deposit at September 30, 1940, were independently confirmed. The depositaries and balances therein were:

CHECKING ACCOUNT:		
First & Merchants National Bank		$ 4,980.51
SAVINGS ACCOUNTS:		
First & Merchants National Bank	$4,244.95	
The Morris Plan Bank of Virginia	5,250.56	9,495.51
TOTAL CASH BALANCE		$14,476.02

Accounts Receivable for membership dues, advertising, and subscriptions to the medical monthly publication are expressed at collectible value as estimated by the Executive Secretary-Treasurer. Federal savings bonds owned in the amount stated below are verified by inspection of the bonds.

DATE PURCHASED	COST	VALUE 9-30-40	DATE OF MATURITY	VALUE AT MATURITY
2-19-36	$ 525.00	$ 591.00	February, 1946	$ 700.00
10-30-39	1,500.00	1,540.00	October, 1949	2,000.00
3-18-40	375.00	375.00	March, 1950	500.00
TOTALS	$2,400.00	$2,506.00		$3,200.00

Provision has been made in the Balance Sheet for all ascertained liabilities at September 30, 1940.

Insurance protection carried, as shown by policies examined, is listed below:

FIRE:	
Office Furniture and Fixtures	$1,000.00
Walter Reed Home, Belroi, Virginia	1,000.00
FIDELITY BOND:	
Secretary-Treasurer	2,500.00

The bookkeeping records were found to have been accurately kept for the year covered by our examination.

Respectfully submitted,

SHEPHERD, JACKSON & WIGGINS,
Certified Public Accountants.

Balance Sheet—September 30, 1940

Exhibit "A"

ASSETS

CASH:		
On Deposit:		
Checking Account	$4,980.51	
Savings Accounts	9,495.51	
		$14,476.02
DUE FROM MEMBERS:		
(Estimated Collectible Value)		
1940 Dues—190 @ $5.00 each		950.00
ACCOUNTS RECEIVABLE:		
VIRGINIA MEDICAL MONTHLY:		
For Advertising	$ 508.56	
For Subscriptions (Estimated)	50.00	
		558.56
SECURITIES:		
United States Savings Bonds (Current Redemption Value $2,506.00)		2,400.00
TOTAL ASSESTS		$18,384.58

LIABILITIES AND SURPLUS

LIABILITIES:		
Accounts Payable:		
For Preparation of MEDICAL JOURNAL—September, 1940 Issue	$ 498.89	
For Office Supplies	8.88	
Reserve for Social Security Tax	22.50	
		$ 530.27
SURPLUS:		
Excess of Assets over Liabilities		17,854.31
TOTAL LIABILITIES AND SURPLUS		$18,384.58

Statement of Income and Expense—Fiscal Year Ended September 30, 1940

Exhibit "B"

MEDICAL SOCIETY OF VIRGINIA DIVISION

INCOME:	ACTUAL	BUDGET
Dues—From Members	$5,336.64	
Royalties on History of Medicine	27.50	
Interest on Savings Accounts (½)	74.71	
Richmond Academy of Medicine for Scientific Exhibits	100.00	
TOTALS	$5,538.85	
EXPENSES:		
Salaries (Apportioned):		
Secretary-Treasurer $1,800.00		
Clerical Assistance 930.00		
	$2,730.00	$2,730.00
Office Rent and Telephone	369.59	365.00
Stationery and Office Supplies	90.27	65.00
Repairs and Replacements	44.46	45.00
Postage	183.10	235.00
Audit Fee (Apportioned)	30.00	30.00
Miscellaneous Expenses	33.45	50.00
Social Security Tax (Apportioned)	22.50	22.50
President's Expenses	100.00	100.00
President-Elect's Expenses	14.90	50.00
Councilors' and Officers' Expenses	102.41	60.00
Delegates to A.M.A. Convention	72.45	150.00
Department of Clinical and Medical Education	500.00	1,200.00
Walter Reed Commission	27.00	75.00
Woman's Auxiliary—Special	46.45	100.00
Appropriations to Committees:		
Medical Economics	20.75	75.00
Legislation	50.20	525.00
Scientific Exhibits and Clinics	103.33	200.00
Child Welfare	-----	10.00
Maternal Welfare	3.50	10.00
Cancer	6.00	20.00

Convention Expenses:			
Reporting Annual Meeting	$150.66		
Programs	80.00		
Badges	85.43		
Invited Guests' Expenses	89.65		
Publicity Expense	84.10		
		489.84	495.00
Delegates to U. S. Pharmacopoeial Convention		45.90	60.00
TOTALS		$5,086.10	$6,672.50
SURPLUS INCOME FOR YEAR		$ 452.75	—0—

VIRGINIA MEDICAL MONTHLY DIVISION

		ACTUAL	BUDGET
INCOME:			
Advertising		$ 7,848.86	
Subscriptions:			
Members	$3,557.76		
Non-Members	345.13		
		3,902.89	
Interest on Savings Accounts (½)		74.70	
TOTAL		$11,826.45	
EXPENSES:			
Salaries (Apportioned):			
Secretary-Treasurer	$1,800.00		
Clerical Assistance	930.00		
		$ 2,730.00	$ 2,730.00
Preparation of JOURNAL (Including Cost of Distribution)		6,329.98	6,500.00
Office Rent and Telephone		355.12	365.00
Stationery and Office Supplies		36.88	30.00
Repairs and Replacements		40.46	45.00
Office Postage		40.84	50.00
Audit Fee (Apportioned)		30.00	30.00
Miscellaneous Expense		19.95	20.00
Social Security Tax (Apportioned)		22.50	22.50
TOTALS		$ 9,605.73	$ 9,792.50
SURPLUS INCOME FOR YEAR		$ 2,220.72	—0—

SUMMARY OF OPERATIONS

DIVISION	ACTUAL INCOME	ACTUAL EXPENSES	SURPLUS INCOME
Medical Society	$ 5,538.85	$ 5,086.10	$ 452.75
Medical Journal	11,826.45	9,605.73	2,220.72
TOTALS	$17,365.30	$14,691.83	$ 2,673.47

RECONCILIATION OF CASH BALANCE:	
Balance—October 1, 1939	$13,677.55
Add: Surplus Income for Year (Above)	2,673.47
TOTAL	$16,351.02
Deduct: Purchase of U. S. Savings Bonds	1,875.00
BALANCE—SEPTEMBER 30, 1940	$14,476.02

The Secretary said that at the annual meeting the House of Delegates voted an honorarium of $1,000 to Dr. Blanton, editor, in recognition of his services on the MONTHLY, but Dr. Blanton had returned the check with the following letter:

> I am returning the check for $1,000, which the House of Delegates voted me at its meeting at White Sulphur. I do not feel that I can accept this as much as I appreciate it. I have not given my services with the idea of monetary remuneration and I have the feeling that to accept this check at this time would deprive me of much of the pleasure which I have gotten from making a small contribution to the affairs of the Society.

Dr. C. E. Martin said he felt Dr. Blanton had showed a very fine spirit in regard to this and a motion was passed that Dr. Blanton might later recommend how he felt this amount should be used, should he so desire.

Dr. Miller moved that the Council convey to Dr. Wyndham Blanton its gratitude for the loyalty, earnestness and ability he has shown in making the MONTHLY an outstanding journal of medicine.

Dr. Bowyer offered an amendment to this motion, that the Society present Dr. Blanton with a loving cup or something tangible to show its appreciation. This was seconded by Dr. W. B. Martin and adopted. Dr. Trout appointed Drs. Bowyer and Martin a committee to select this gift.

The Secretary said Dr. Trout, President, had also returned $86.55 of his unexpended budget to be applied to post-graduate work among colored physicians, and it was stated that this should be placed to the credit of the Department of Clinical and Medical Education for this purpose.

The following letter from Dr. R. L. Payne of Norfolk was next presented:

> MISS AGNES EDWARDS,
> RICHMOND, VIRGINIA.
> DEAR MISS EDWARDS:
>
> I am enclosing a pair of old forceps that apparently are hand forged, which have been given me by Dr. William Henry Venable, a very prominent attorney of Norfolk, who is 71 years old and now passing his last days at Hampden-Sidney, Virginia, where he was born and reared.
>
> He states he found them in the bottom of an old trunk which had been in the basement of their old home between seventy-five and a hundred years and that these forceps were carefully wrapped in paper and labeled in his grandfather's hand writing "Used by old Dr. Francis Mettauer".
>
> As I recall Dr. John Peter Mettauer was the son of Dr. Francis Mettauer who opened the first medical school in Virginia about a mile from Hampden-Sidney.
>
> Mr. Venable tells me that the old letters show that Dr. Francis Mettauer was a medical officer attached to a company of French soldiers who during the Revolution were quartered for the winter about two miles from Hampden-Sidney and that he subsequently made his home in that neighborhood.
>
> I thought you would like to have this pair of old forceps to place in the historical display.
>
> R. L. PAYNE, M. D.

As the Society has no historical display, Dr. Rawls moved that the forceps be presented to the Richmond Academy of Medicine for its museum. Dr. Blanton felt the Society should not relinquish its right to have these in case it was ever in position to have an exhibit and suggested that they be presented the Academy as a loan

from the Medical Society of Virginia. Dr. Rawls' motion as amended was adopted.

Dr. Hundley moved that Dr. Payne be sent a note of appreciation from the Council for the forceps, advising that they are being offered to the Richmond Academy of Medicine as a loan.

A letter had been received from the management of the Cavalier Hotel at Virginia Beach, asking that the Society select dates for its 1941 meeting as promptly as possible so these may be reserved. Upon motion, it was decided to hold the next meeting during the second week in October. Dr. Bowyer thought the plan to start the meeting on Monday as for the 1940 meeting, instead of Tuesday as formerly, was excellent. After discussion, however, it was decided to leave this to the Program Committee. In publishing rates given by the Cavalier, the secretary was instructed to secure those from other hotels at Virginia Beach, to be used at the same time.

Dr. Trout said that Dr. Guy Harrison had suggested some official relation between the State Dental and Medical Associations, in response to which Dr. Holland moved that a committee be appointed to look into this. Dr. Trout asked Dr. Martin to appoint this committee.

A detailed financial statement from the Department of Clinical and Medical Education was ordered received and filed.

Dr. Holland felt the Budget Committee, composed of Drs. Miller and C. E. Martin, had rendered a real service to the Society and moved that a rising vote of thanks be given them, in appreciation of their services. Carried.

Dr. W. B. Martin said he was very much interested in securing better response to the questionnaires recently sent all doctors by the American Medical Association and felt the secretary should send each Councilor a list of every doctor in his district that he might have the local secretaries contact all doctors in their counties. Dr. Bowyer thought it would be better to have the lists sent the secretaries with duplicate copies to the Councilors and this was agreeable to Dr. Martin.

Business having been completed, the Council adjourned for lunch in the dining room of the Richmond Academy of Medicine.

Following lunch, Dr. Trout stated it was his pleasure to turn the meeting over to Dr. Walter B. Martin, the new President.

Dr. Martin asked Dr. Hutcheson, of the Legislative Committee, if there were any points he wished to discuss with the Council. Dr. Hutcheson said it was his understanding that the special fund to be raised by increasing dues was under the jurisdiction of a special committee composed of the President and the chairmen of the Legislative and Medical Economics Committees, and the expenditure of same is subject to the authority of the Council. In this case, he felt some arrangement should be made by which funds would be available in case of need, prior to the next meeting of the Council. He, therefore, offered the following motion: that the Special Committee be empowered to expend such funds as may be necessary in the performance of legislative work prior to the next meeting of the Council. This receiving a second, Dr. Robertson asked if this implied authority to employ counsel, to which Dr. Hundley replied, if necessary to prosecute illegal practitioners, counsel would have to be employed. The motion carried.

The Special Committee was requested to make a report to the Council at its next meeting.

Dr. Martin then asked the Councilors to report to the Secretary what days of the week and what hours were most convenient for them to attend Council meetings as this would be of assistance in arranging the next meeting.

The President again impressed upon Councilors the need of their cooperation in securing answers to the A.M.A. Questionnaires and asked that they have answers sent the Society's office.

Drs. Hutcheson and Powell were appointed by the President as the Budget and Finance Committee of the Council, with Dr. Hutcheson as chairman.

Adjournment followed.

AGNES V. EDWARDS,
Secretary.

Approved:
HUGH H. TROUT, M. D.
WALTER B. MARTIN, M. D.

Woman's Auxiliary to the Medical Society of Virginia

President—MRS. GRIFFIN HOLLAND, Eastville.
President-Elect—MRS. E. LATANE FLANAGAN, Richmond.
Recording Secretary—MRS. HAROLD W. POTTER, Hilton Village.
Corresponding Secretary—MRS. J. WALKER JACKSON, Machipongo.
Parliamentarian—MRS. JAMES B. STONE, Richmond.
Treasurer—MRS. REUBIN F. SIMMS, Richmond.
Chairman, Press and Publicity—MRS. HENRY M. SNEAD, Petersburg.

Northampton-Accomac Auxiliary.

The Woman's Auxiliary to the Northampton-Accomac Medical Society met with Mrs. Holland Trower, on October 1st, at "Kendall Grove" near Eastville, with eighteen members present.

The Auxiliary enjoyed a delightful oyster roast before the business meeting. An auction bake was also held for the Leigh-Hodges-Wright Memorial Bed Fund.

The Auxiliary feels much honored in having Mrs. Griffin W. Holland, Sr., the State President, as one of its charter members. Mrs. Holland outlined her plans for the coming year. Two new members were

welcomed—Mrs. Le Kites of Chincoteague and Mrs. Fosque of Onancock. Mrs. McGough, our Public Health Officer's wife, was a guest of the meeting.

The Northampton-Accomac Memorial Hospital at Nassawadox was presented with its annual gift which consisted of chairs for patients' rooms.

The new officers for 1941 are: President, Mrs. J. L. DeCormis, Accomac; vice-president, Mrs. Holland Trower, Eastville; secretary, Mrs. J. H. Hiden, Pungoteague; and treasurer, Mrs. S. S. Kellam, Cape Charles.

The January meeting will be at the home of Mrs. W. J. Sturgis, Nassawadox, at which time a Food Sale will be held.

CATHERINE R. TROWER (MRS. HOLLAND TROWER)
Chairman, Press and Publicity.

Truth About Medicine

In addition to the articles previously enumerated, the following have been accepted by the Council on Pharmacy and Chemistry of the American Medical Association:

Parke, Davis & Co.

Capsules Sulfapyridine, 0.25 Gm. (3¾ grains).

E. R. Squibb & Sons.

Solution Thiamine Chloride—Squibb, 5 cc. Vial. 100 mg. per cc.

Upjohn Company.

Hypodermic Tablets Procaine Hydrochloride 0.05 Gm.

Hypodermic Tablets Procaine Hydrochloride 0.02 Gm. (1/3 grain) with Epinephrine 0.025 mg. (1/2500 grain).

New and Nonofficial Remedies

The following products have been accepted by the Council on Pharmacy and Chemistry for inclusion in New and Nonofficial Remedies:

Antipneumococcic Serum Rabbit Serum, Type I, Concentrated.—Prepared from the blood of rabbits which have been immunized by repeated injections of type I pneumococci, according to the procedure suggested by Horsfall, Goodner, MacLeod and Harris (*J.A.M.A.*, 108: 1483, May 1, 1937). The final product contains merthiolate 1 in 10,000 and 0.2 per cent of phenol. Marketed in packages of one vial containing 20,000 units and one vial containing 5 cc. of the same serum diluted (1:100) for the sensitivity test. E. R. Squibb & Sons, New York.

Antipneumococcic Rabbit Serum, Therapeutic, Types I, II, V, VII, and VIII.—Prepared by immunizing rabbits with intravenous injections of virulent cultures of types I, II, V, VII, and VIII pneumococcus. These products are refined and concentrated by a method perfected in the firm's laboratories. The usual sterility and safety tests are carried out in accordance with the requirements of the National Institute of Health. The serum is marketed in ampule packages, each containing 20,000 units or 50,000 units of the specified type pneumococcus antibody. The Gilliland Laboratories, Inc., Marietta, Pa.

Soluble Trituration Silver Picrate 20 per cent with Boric Acid 80 per cent.—A soluble mixture of silver nitrate—N.N.R. (New and Nonofficial Remedies, 1940, p. 486) 20 per cent, and boric acid, 80 per cent. John Wyeth & Brother, Inc., Philadelphia, Pa.

Silver Picrate Jelly, 0.5 per cent.—A water miscible jelly containing silver picrate—N.N.R. (New and Nonofficial Remedies, 1940, p. 486), 0.5 per cent in tragacanth jelly, 1.5 per cent. John Wyeth & Brother, Inc., Philadelphia, Pa. (*J.A.M.A.*, August 10, 1940, p. 460.)

Propaganda for Reform

Present Status of Injection Treatment of Hernia.—In September, 1936, the Council on Pharmacy and Chemistry published a report on the injection treatment of hernia based on the replies to a questionnaire which had been addressed to a selected list of hospitals throughout the country. After consideration of the replies the Council concluded that, although there are cases in which this treatment is applicable and effective, nevertheless it should be borne in mind that the attempted cure of hernia by the application of the method of adhesive inflammation is not new; that it had failed to establish itself as a routine method for such treatment and was still in an early experimental stage; further, that physicians who practice this method should realize the dangers from an ethical, a legal and a financial point of view. To keep the Council's information up to date on this subject, the same questionnaire was again addressed to those hospitals which formerly replied. After due consideration of the second hospital survey and the reports in the recent literature, the Council voted to adopt this report to reaffim its previous opinion that the injection method of treating hernia may not be recognized for general use and should be employed only by those with special experience and with full cognizance of the dangers involved in the use of such solutions. The Council now concurs in the opinion that the method involves less danger of serious complications than surgery when employed only in selected cases of hernia by those skilled in the injection of suitable standardized solutions of known composition and action. The Council is not, however, willing to recognize any such solutions for New and Nonofficial Remedies until sufficient follow-up experience in their application has been gained to establish the success of the injection method of treatment. Present evidence indicates that better types of solution are to be desired. (*J.A.M.A.*, August 17, 1940, p. 533.)

Book Announcements

Dermatologic Allergy. An Introduction in the Form of a Series of Lectures. By MARION B. SULZBERGER, M.D., Assistant Clinical Professor of Dermatology and Syphilology, Skin and Cancer Unit of the New York Post Graduate Medical School and Hospital and Hospital of Columbia University;

Associate Attending in Dermatology and Syphilology, Montefiore Hospital, New York; Consultant in Dermatology and Syphilology, French Hospital, New York. Charles C. Thomas. Baltimore, Md. 1940. xxiii-540 pages. Cloth. Illustrated. Price, $7.50.

In this book the author has considered the phenomenon of allergy as it pertains to the skin. The author very modestly considers this work as "an introduction in the form of a series of lectures".

The material is divided into fourteen lectures plus appendices. One lecture is devoted to the skin as a protective organ, with especial emphasis on "immune —biologic protection". The fundamental aspects of allergy are considered; this includes non-living as well as living allergens. The section on contact dermatitis covers all the aspects of this vexing problem. The value of the patch test as diagnostic aid is considered. The author presents his conception of atopic dermatitides, and gives special attention to the various methods of skin testing. There are a number of lectures which deal with the manifestations of allergy in infectious diseases, tuberculoderms, fungi, syphilis, etc. There is a lecture on drug eruptions. "On the Future of Allergy" is the subject of the last lecture.

The appendices include: a translation of V. Pirquet's original article on allergy, a valuable list of substances to be used in patch testing, criteria for determining whether or not a dermatitis is of industrial character, and the management of eczema and urticaria.

Throughout the book the author asks many stimulating questions and points out the need for further investigation.

The book is well illustrated and contains a goodly number of tables. The publishers have done an excellent piece of work which will be welcomed by all who are interested in the allergic manifestations of the skin.

Simplified Diabetic Manual. By ABRAHAM RUDY, M.D., Associate Physician and Chief of the Diabetic Clinic, Beth Israel Hospital, Boston, Instructor in Medicine, Tufts College Medical School, Consultant in Diabetes, Jewish Memorial Hospital, Roxbury, Mass. and Jewish Tuberculosis Sanatorium, Rutland, Mass. M. Barrows & Company, Incorporated. New York. 1940. Octavo of 216 pages. Cloth. Price, $2.00.

The general make-up of this book is good. The paper is dull finish and the print is large and clear so that it is read with ease. The statements are simple and brief and can be understood by nearly all patients. The general treatment of the subject is handled in an orderly manner, and the advice is sound and avoids controversy. Of course, the subject matter is that which has been employed by previous authors of such books for some years.

Although the book comprises two-hundred and sixteen pages, only seventy-seven are devoted to the general treatment of diabetes. The remainder is taken up with detailed discussion of foods and menus, including those adapted especially to different human races. Whereas this emphasis on diet is compatible with the importance of diet in treatment, it nevertheless seems to me to make the treatment more time consuming and laborious than is necessary. Practically any diabetic diet can be prepared from the foods ordinarily served in any household, and emphasis on special dishes would seem to be catering to taste unnecessarily and thereby to distinguish more sharply between the diabetic and non-diabetic individual.

WM. R. JORDAN, M.D.

Management of the Cardiac Patient. By WILLIAM G. LEAMAN, JR., M.D., F.A.C.P., Assistant Professor of Medicine in Charge of the Department of Cardiology Woman's Medical College of Pennsylvania; Cardiologist, Woman's College, Memorial, Northeastern Hospitals and Philadelphia Hospital for Contagious Disease; Consulting Cardiologist, St. Luke's and Children's Hospital; etc. Philadelphia. J. B. Lippincott Company. 1940. Octavo of xx-705 pages. 255 Original Illustrations. Cloth. Price, $6.50.

This volume, consisting of twenty-four chapters and 637 pages, is designed to give the reader a comprehensive approach to the problems of cardiovascular disease in all of its aspects. The writer not only gives quite an adequate discussion of the clinical aspects of heart disease, but lays special emphasis upon the management and specific therapy of the different situations which arise in the clinical course of patients having damage to the heart and vascular system. In addition to assembling in concrete form the recent and established principles accepted by those working in this field, he has illustrated most of the clinical problems by well selected and presented case reports. This is a very useful aspect of the book. This volume is a real contribution to this field, and can be classed as a volume of first order dealing with this phase of medicine.

WILLIAM B. PORTER, M.D.

Virginia Medical Monthly

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WYNDHAM B. BLANTON, M. D., *Editor*
AGNES V. EDWARDS, Richmond, *Business Manager*

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Editorial

Our Next President.

For several years prior to the meeting of the Society in Richmond in October, 1939, physicians from various parts of the State were asking why the Society had not elevated Walter Martin of Norfolk to the Presidency. He seemed to be the center of activity at every meeting—always in the hottest of the fight; he read most excellent papers at the meetings, and joined vigorously in the discussions of the most scientific and up-to-date subjects. Not only on medical subjects, but Medical Legislation and Medical Economics, he was always on the job with the latest and most enlightened ideas. This murmuring became so loud, and from so many sources, that by the time the House of Delegates was called, and the nominating committee chosen, no one seemed to have any name to suggest but that of Walter Martin; each member of the nominating committee wanted to nominate him as the choice of his District. This is the greatest proof of the wisdom of his selection as President of the Society for the coming year.

Walter Bramblette Martin was born in Pulaski, Virginia, January 16, 1888, the son of Davil Hall and Louisa Sutton Martin. He was educated at home until he entered the Virginia Polytechnic Institute in 1905, from which he graduated in 1909—majoring in Analytical Chemistry. He was President of the Student Body; President of his class; and Editor-in-Chief of the Annual (*The Bugle*). From 1909-1912 he taught chemistry and mathematics at the Norfolk Academy.

He entered the Medical Department of the Johns Hopkins University in 1912, was elected to Phi Beta Kappa and Alpha Omega Alpha, and graduated in 1916. Subsequently he became Resident House Officer on the Medical Service at Johns Hopkins Hospital, serving in this capacity for 1916 and 1917.

He was commissioned First Lieutenant, Medical Reserve Corps, April 17, 1917, and was ordered to active duty June 13, 1917. He was discharged June 15, 1919, with the rank of Captain.

On September, 1919, Dr. Martin entered the practice of Internal Medicine in Norfolk, Virginia, where he has made a notable success.

He is affiliated with the following Societies: Norfolk County Medical Society (Past President); Seaboard Medical Association (Past President); Medical Society of Virginia; American Medical Association (Member of the House of Delegates); American College of Physicians (Governor for Vir-

ginia); American Association for the Study of Allergy; American Association of Clinical Pathologists; American Association for the Study of Rheumatism.

Dr. Martin stands out prominently as one of the most progressive and scientific physicians of the State, and, besides being a leader in medical subjects, he is one of the most active men in civic affairs as well. He was President of the Community Fund for two years, and is at present President of the Norfolk Hospital Association, Vice-President of the Tidewater Hospital Service Association, and, for the second time, President of the Visiting Staff of Saint Vincent's Hospital. He is an active member of the Presbyterian Church and a Democrat.

Dr. Martin was married in 1917 to Miss Lucretia DeJarnette. They have three children, one son and two daughters.

More activities could be accredited to him, but enough have been cited to convince the fellows of the Medical Society of Virginia that they have chosen wisely in electing Walter B. Martin as President for 1940 and 1941.

P. ST.L. M.

WALTER BRAMBLETTE MARTIN, M. D.,
President, Medical Society of Virginia.

A.M.A. Weekly Radio Broadcasts to Be Resumed November 13.

"The winter and spring season of network radio broadcasting will be resumed by the American Medical Association in cooperation with the National Broadcasting Company over the Blue network of stations beginning Wednesday, November 13, at 10:30 to 11 p. m. eastern standard time (9:30-10 central, 8:30-9 mountain and 7:30-8 Pacific)," according to *The Journal* of the Association.

"The program will be in dramatized form constituting the sixth successive season of dramatized broadcasting by the Association on a nationwide network. The title of the program will be Doctors at Work. The theme of the program will be the interpretation to the listener of services available in the treatment of disease and the preservation and promotion of health through the various branches of modern medicine. Thirty programs are planned dealing with different phases of medical practice, beginning with medical education, internship, residency and general practice and embracing all the major specialties in medicine and in medical phases of public health work.

"The scripts will be written by William J. Murphy, director of continuity for the central division of the National Broadcasting Company, and will be under the supervision of the Bureau of Health Education with the cooperation of Miss Judith Waller, educational director, central division, National Broadcasting Company.

"The evening hour assigned for these broadcasts is the most favorable hour that has ever been made available for sustaining health education broadcasts. Poster announcements of the programs have been prepared by the Bureau of Health Education. These will be sent in any reasonable quantity which can be effectively used on request from state or local medical societies and units of the Woman's Auxiliary or to health departments, schools or other educational institutions.

"Titles of programs to come will be published three weeks in advance in *The Journal* and monthly in advance in *Hygeia*.

"Comments on the program from physicians and other listeners are invited."

President's Message

As President of the Medical Society of Virginia, I extend greetings to each member of the Society, and wish to express to you my appreciation of the honor which is mine. Our Society has a long and honorable history and to be its President might well be the culmination of the worthy ambitions of any physician.

In taking office, I am fully conscious of the responsibility entailed. There are a number of serious matters before the Society, but all of these have been overshadowed by the problems connected with the emergency defense preparations. We of our profession in Virginia are willing and anxious to aid in every way the defense program. While the information is as yet quite meager as to the part we may be called upon to play, it is certain that we should be prepared to function effectively when the time comes.

By the action of our House of Delegates, all matters pertaining to the Preparedness Program have been put in the hands of the Council. Committees have been set up in each component society and in each county, responsible to the President and the Council. The councilor in each district is charged with the duty of cordinating the activities of these committees and maintaining contact with the State organization. Doctor Hugh Trout represents Virginia on the Preparedness Committee of the American Medical Association and will maintain liaison between our Council and the National Committee. It is urged that each local committee be prepared to act promptly when called upon.

At present the matter of most immediate concern is to complete the return of the questionnaires from each physician in the State. It is to be emphasized that this includes all physicians who have graduated from recognized schools of medicine, regardless of age or color, and includes physicians who have retired from practice and those in the government service, either in active duty or in the National Guards or Reserves.

There are other problems that should have the thoughtful consideration of every member of our Society. Last year, in spite of the fact that Virginia showed a considerable population increase, we lost one delegate in the House of Delegates of the American Medical Association. It behooves us to use every effort to increase our membership so as to regain our relative strength in the House of Delegates of the American Medical Association.

In accordance with the directions of our House of Delegates, the Legislative Committeee has been enlarged and we have a strong representative committee preparing to carry out the policies of our organization. It is a matter of regret that because of other heavy demands on his time Doctor Morrison Hutcheson, who so ably directed the committee last year, is unable to continue as its chairman, but I feel that we are very fortunate in having Doctor Dean Cole as his successor.

Also in accordance with the action of our House of Delegates, the Committee on Industrial Medicine is to be enlarged. The full personnel of this committee will be completed later. This committee will have an important function to perform, in view of the rapid development in Virginia of large industrial groups.

The Pneumonia Commission has been enlarged so as to represent various sections of the State in this group. Attention is directed to the recent bulletin from the Yirginia Department of Health which indicates the progress that is being made in pneumonia control work.

Certain of the committees carrying on programs that are continuous from year to year have been changed very little in order to maintain their continuity.

The situation in the nursing field is becoming acute, and it is felt that some program should be worked out by our committee, in conjunction with the representative of the nurses' organization, that will offer a constructive solution of the nursing problem.

While the pressure for state medicine is somewhat relaxed, due to the development of the present emergency, the conditions which brought about this pressure still exist and will probably be aggravated later on. New problems in this field are also arising, due to change in economic conditions and shifting population associated with the development of new industrial groups. The present Committee on Medical Economics, which has done such excellent work in the past, is continued with the same personnel and under the same chairman, since I feel that we need the benefit of their experience this year.

XUM

I feel that with strong committees engaged in the study of the many matters affecting the interests of the physicians and of all of our people, we can look forward to a year of progress.

WALTER B. MARTIN,
President, Medical Society of Virginia.

Standing Committees

(The number after each name indicates the length of term of office, as one member of each Standing Committee is named by the in-coming President for a term of three years, except in the case of the Department of Clinical and Medical Education, Legislation, and the Medical Economics Committee.)

PUBLICATION AND PROGRAM: Dr. Wyndham B. Blanton (3), *chairman;* Dr. J. Edwin Wood, Jr. (1); Dr. H. S. Daniel (2).

SCIENTIFIC EXHIBITS AND CLINICS: Dr. W. Ambrose McGee (1), *chairman;* Dr. W. W. S. Butler (2); Dr. George Duncan (3).

DEPARTMENT OF CLINICAL AND MEDICAL EDUCATION: Dr. Hugh H. Trout, *chairman;* Mr. George B. Zehmer, *executive secretary;* Dr. I. C. Riggin; Dr. Lee E. Sutton; Dr. H. B. Mulholland; Dr. J. W. Preston; Dr. W. B. Newcomb.

LEGISLATION: Dr. Dean B. Cole (3), *chairman;* Dr. W. D. Kendig (3), Dr. A. F. Robertson, Jr. (3), Dr. C. M. Caravati (2); Dr. C. C. Smith (2); Dr. J. Morrison Hutcheson (2); Dr. J. D. Willis (1); Dr. J. C. Motley (1); Dr. J. B. McKee (1).

MEDICAL ECONOMICS: Dr. John Hundley, Jr. (1), *chairman;* Dr. A. B. Hodges (1); Dr. H. A. Latane (2); Dr. James P. King (2); Dr. Guy Fisher (3); Dr. Carrington Williams (3).

MEMBERSHIP: Dr. Joseph A. White (3), *chairman;* Dr. J. Bolling Jones (2); Dr. D. M. Kipps (1).

ETHICS: Dr. I. C. Harrison (3), *chairman;* Dr. J. R. Gorman (1); Dr. R. L. Raiford (2).

Special Committees

ADVISORY BOARD TO WOMAN'S AUXILIARY: Dr. S. K. Ames, *chairman;* Dr. Hawes Campbell, Sr.; Dr. C. O. Dearmont.

JUDICIAL: Dr. P. St. L. Moncure, *chairman;* Dr. P. W. Boyd; Dr. P. W. Miles; Dr. G. W. Holland; Dr. Frank Farmer.

CHILD WELFARE: Dr. F. D. Wilson, *chairman;* Dr. J. B. Stone; Dr. E. A. Harper; Dr. C. E. Conrad; Dr. J. N. Williams; Dr. W. B. McIlwaine; Dr. R. D. Bates, Sr.; Dr. J. M. Bishop; Dr. L. T. Royster.

MATERNAL HEALTH: Dr. M. P. Rucker, *chairman;* Dr. C. J. Andrews; Dr. A. M. Groseclose; Dr. T. J. Williams; Dr. J. A. Owen; Dr. E. B. Kilby; Dr. Walter McMann.

WALTER REED COMMISSION: Dr. C. P. Jones, *chairman;* Dr. J. D. Clements; Dr. J. W. Smith.

TO ARRANGE PROGRAM FOR HEALTH DIVISION OF VIRGINIA WELFARE CONFERENCE: Dr. T. Dewey Davis, *chairman;* Dr. D. C. Wilson; Dr. J. M. Hurt; Dr. F. P. Fletcher; Dr. C. F. Graham.

PNEUMONIA COMMISSION: Dr. Wyndham B. Blanton, *chairman;* Dr. George Lawson; Dr. P. S. Smith; Dr. Harry Walker; Dr. Staige D. Blackford; Dr. B. S. Yancey; Dr. John R. Hamilton; Dr. E. L. Alexander; Dr. Ernest G. Scott.

TO CONFER WITH STATE BOARD OF NURSES' EXAMINERS: Dr. W. L. Peple, *chairman;* Dr. Russell Buxton; Dr. C. B. Morton; Dr. Frank S. Johns; Dr. Elisha Barksdale; Dr. Alfred P. Jones.

SYPHILIS CONTROL: Dr. R. D. Kimbrough, *chairman;* Dr. E. E. Barksdale; Dr. D. C. Smith; Dr. J. W. Love; Dr. W. B. Porter.

TUBERCULOSIS: Dr. Frank B. Stafford, *chairman;* Dr. E. C. Harper; Dr. C. L. Harrell.

ADVISORY TO STATE DEPARTMENT OF HEALTH: Dr. Frank Smith, *chairman;* Dr. P. Q. Daniel; Dr. J. M. Lynch; Dr. R. A. Moore; Dr. John A. Gibson; Dr. Karl Blackwell.

CANCER: Dr. E. P. Lehman, *chairman;* Dr. I. C. Riggin; Dr. R. P. Bell; Dr. R. L. Payne; Dr. Wright Clarkson; Dr. Fred Hodges; Dr. I. A. Bigger; Dr. Hugh Trout.

INDUSTRIAL HEALTH: Dr. F. J. Wampler, *chairman;* Dr. C. B. Bowyer; Dr. W. R. Whitman; Dr. I. C. Riggin; Dr. H. U. Stephenson; Dr. H. T. Hawkins, Dr. George McLean Lawson.

REPRESENTATIVE TO VIRGINIA WELFARE COUNCIL: Dr. F. P. Fletcher.

Department of Clinical and Medical Education
of the
Medical Society of Virginia

Postgraduate Clinic.

The twenty-sixth postgraduate clinic of the University of Virginia Department of Medicine will be held in the amphitheater of the medical school on Friday and Saturday, November 8 and 9. This will consist of a Symposium on Obstetrics and Gynecology. The full program will be as follows:

Friday

10:00-11:00 a.m.—SYPHILIS IN PREGNANCY—Dr. H. H. Hazen, Consultant Dermatologist to U. S. P. H. S., Washington, D. C.

11:00-Noon—PUERPERAL INFECTIONS—Dr. James R. McCord, Professor of Obstetrics and Gynecology, Emory University, Atlanta, Georgia.

Noon-1:00 p.m.—LUNCHEON IN UNIVERSITY HOSPITAL DINING ROOM as guests of the University of Virginia Hospital.

1:30-2:30 p.m.—PYELITIS IN PREGNANCY—Dr. Herbert F. Traut, Associate Professor of Obstetrics and Gynecology, Cornell University, New York.

2:30-3:30 p.m.—ANEMIAS OF PREGNANCY—Dr. Maurice B. Strauss, Boston City Hospital, Boston, Massachusetts.

3:30-4:30 p.m.—MATERNAL HEALTH IN VIRGINIA—Dr. M. Pierce Rucker, Johnston-Willis Hospital, Richmond, Virginia.

4:30 p.m.—INSPECTION OF NEW PUBLIC WARDS, WEST ADDITION, UNIVERSITY HOSPITAL.

8:00 p.m.—JAMES CARROLL FLIPPIN LECTURE—THE TOXEMIAS OF PREGNANCY—Dr. Robert D. Mussey, Head of Section, The Mayo Clinic, Rochester, Minnesota.

Saturday

10:00-11:00 a.m.—TUBERCULOSIS IN PREGNANCY—Dr. David A. Cooper, Assistant Professor of Medicine, University of Pennsylvania, Philadelphia, Pennsylvania.

11:00-Noon—ENDOCRINE THERAPY OF OVARIAN FAILURE DURING REPRODUCTIVE PERIOD—Dr. Edwin C. Hamblen, Associate Professor of Obstetrics and Gynecology, Duke University, Durham, North Carolina.

Noon-1:00 p.m.—PLANNED PARENTHOOD (with film on "Technique of Contraception"—fifteen minutes)—Dr. Clarence J. Gemble, Milton, Massachusetts.

2:30 p.m.—FOOTBALL GAME—University of Virginia vs. Washington and Lee University, Scott Stadium.

Summer Short Course.

A highly successful short postgraduate course on Recent Advances in Internal Medicine was held at the University of Virginia during the week of June 17-22. The instructors consisted of the staff members of the Department of Internal Medicine of the University of Virginia and other members of the faculty of the Department of Medicine. The morning programs consisted of lectures while the afternoons were devoted to clinics, ward rounds, and demonstrations. Frequent round table discussions were held in the evenings.

A somewhat more extended course is being considered for next summer. Suggestions for the program will be welcomed by Dr. Staige D. Blackford, Chairman of Graduate Clinics.

The following doctors attended the Summer Short Course:

Dr. S. K. Ames, Cape Charles.
Dr. F. D. Daniel, Charlottesville.
Dr. Julian B. Doss, Penhook.
Dr. Elizabeth Edmunds, Lynchburg.
Dr. James A. Gooch, Alexandria.
Dr. Ruth S. Mason-Grigg, Petersburg.
Dr. Percy Harris, Scottsville.
Dr. L. Floyd Hobbs, Alexandria.
Dr. J. Meriwether Hurt, Blackstone.
Dr. J. Bernard Jones, Culpeper.
Dr. Anita Lotti, Charlottesville.
Dr. John C. McCluer, Jr., Alexandria.
Dr. John B. McKee, Winchester.
Dr. A. M. McLaughlin, Waynesboro.
Dr. Brooke B. Mallory, Lexington.
Dr. J. O. Mundy, Charlottesville.
Dr. Dan O. Nichols, Charlottesville.
Dr. Charles L. Savage, Ashland.
Dr. Henry B. Showalter, Kenbridge.
Dr. Bliss K. Weems, Waynesboro.
Dr. William H. Wood, Charlottesville.

Local Short Courses.

Plans are now being made for short courses to be held in a number of localities in the state during the winter and spring. Local societies desiring courses may make arrangements by communicating with the Executive Secretary.

GEORGE B. ZEHMER,
Executive Secretary.

Proceedings of Societies

The Southwestern Virginia Medical Society

Held its annual fall meeting in Marion, October 2, with the President, Dr. C. F. Manges, Blacksburg, presiding. The afternoon session was held at the new auditorium of the Southwestern State Hospital, with approximately fifty members present. The following program was given: Psychiatric Clinic by Dr. David C. Wilson, University of Virginia; Report of Use of Shock Therapy at Southwestern State Hospital with Demonstration of Metrazol Seizures by Drs. Joseph E. Barrett, W. H. McCarty, and A. D. Hutton; New Drugs in Neuropsychiatry by Dr. Wilson; and Round Table Discussion of Psychiatric Problems with Dr. Joseph R. Blalock as moderator.

Immediately following the scientific session, a business meeting was held. Drs. E. P. Ambrose,

Christiansburg, Algie C. Davis and Blanton P. Seward of Roanoke, Gerhard Gabriel, Abingdon, N. J. Chew, Bristol, and C. G. Williams, Pearisburg, were voted into membership.

The following new officers were elected: President, Dr. T. K. McKee, Saltville; vice-president, Dr. W. C. Caudill, Pearisburg, secretary-treasurer, Dr. James P. King, Radford (re-elected). Dr. W. A. Porter, Hillsville, was elected a new member of the Executive Committee.

The evening session was held at the Hotel Lincoln with eighty members present. An informal party was followed by a banquet. Dr. C. F. Manges gave a very interesting paper on The General Practitioner's Future. The guest speaker was Dr. Russell L. Haden of the Cleveland Clinic, Cleveland, who spoke on Treatment of Anemia.

Patrick-Henry Medical Society.

This Society held its regular quarterly meeting in Martinsville, on the evening of October 11th, at which time Dr. Allen Barker of Roanoke presented an interesting, illustrated paper on Lesions of the Gastro-Intestinal Tract. This being the annual meeting, the election of officers was held with the following being named for the coming year: President, Dr. E. M McDaniel of Martinsville; vice-president, Dr. B. A. Hopkins of Stuart; and secretary-treasurer, Dr. R. H. Walker (re-elected) of Martinsville.

Norfolk County Medical Society.

Dr. Bayard E. Horton, of the Division of Medicine at Mayo Clinic, Rochester, Minn., was the guest speaker before the Norfolk County Medical Society at its meeting on October 14, his subject being "Recent Observations in the Treatment of Headaches and Vertigo".

The following Monday, there was a symposium on "Peptic Ulcer", the discussants being Dr. M. Richard Whitehill, who spoke on "Some Medical Aspects", and Dr. Horace G. Ashburn, whose subject was "Surgical Treatment".

The Orange County Medical Society

Held its regular quarterly meeting on October 4, under the presidency of Dr. J. P. Hankins. The Committee on Medical Preparedness was appointed at this time. It was decided that the Society should have motion pictures of scientific subjects, with papers presented by the members to help make the meetings interesting. The next meeting will be held in January.

G. R. ELLIOTT, *Secretary.*

James River Medical Society.

At the meeting of this Society on October 9th, Dr. Rolland Main, Professor of Physiology of the Medical College of Virginia, spoke on "Physiology of Vitamins". Dr. N. P. Snead, Cartersville, is president of this Society and Dr. Garland Dyches, Dillwyn, secretary.

The Danville Academy of Medicine,

Of which Dr. W. B. Sager is president and Dr. E. E. Barksdale secretary, is planning a number of activities for the coming year. At the September meeting, Dr. Vincent W. Archer of the University of Virginia discussed "Gastro-Intestinal Bleeding" and Dr. W. deB. MacNider of the University of North Carolina spoke on kidney diseases, at the October meeting.

The Roanoke Academy of Medicine

Held its first Fall meeting on October 7th, with the retiring president, Dr. L. G. Richards, presiding. Dr. L. D. Keyser was appointed to present Dr. K. D. Graves who was duly installed as president for the coming year. Dr. Glenn L. Walker was elected to membership, several applications were referred to the Membership Committee for consideration, and committees were appointed to look after special matters brought before the meeting.

The scientific program was in the form of a presidential address by Dr. Graves, who discussed Trichinosis, presenting case reports with conclusive data. The discussion which followed was led by Dr. George Hurt. Upon adjournment, refreshments were served as usual.

The Clinch Valley Medical Society

Met at Norton, October 18th, under the presidency of Dr. J. H. Hagy of Imboden, with a registered attendance of forty-seven. The following papers were presented by professors from the Medical College of Virginia, Richmond: Progress in the Prevention of Diseases by Dr. Fred. J. Wampler; The Use of Modern Drugs in Traumatic and Orthopedic Surgery by Dr. James T. Tucker; and The Practice of Obstetrics in the Home by Dr. H. C. Spalding. In addition to these, Dr. George Fordham, chairman of the Committee on Industrial Hygiene of the West Virginia State Medical Association, spoke on Developing a Medical Program

for a Coal Industry, and Mr. R. T. Homewood, Industrial Hygiene Engineer of the State Health Department of Virginia, gave a talk.

At the business session, Dr. C. H. Henderson of Norton was elected president; Dr. R. S. Phipps of Clintwood vice-president; and Dr. C. B. Bowyer of Stonega was re-elected secretary-treasurer. Norton was again selected for the Spring meeting.

News Notes

Southern Medical Association.

When it is stated that another Southern Medical meeting is to be held, it always arouses interest, as these are some of the most popular gatherings of physicians—especially in the South. Louisville, Kentucky, is the meeting place and the dates are November 12th to 15th, inclusive. A record attendance is anticipated as the two headquarters hotels have no more rooms available. However, all downtown hotels are convenient to exhibits and meeting places, and the Hotel Committee, of which Dr. James H. Pritchett is chairman, will be glad to make reservations for doctors who advise the price and type of accommodations desired. Address the Committee at Room 413, 421 West Market Street, Louisville.

All members of state and county medical societies in the South are cordially invited to attend.

News from the State Department of Health.

Dr. W. Brownley Foster, Richmond, was appointed an associate physician with central office staff of the State Department of Health, effective October 1.

The organization of the new administrative headquarters to be known as the Southeast Health District at Norfolk became effective October 16th. The Assistant Director of Rural Health for this district will be Dr. J. C. Neale, Jr., formerly in charge of the Southwest Health District. The territory under the jurisdiction of this headquarters will be Isle of Wight, Nansemond, Norfolk and Princess Anne Counties. The city of Suffolk is a part of the Isle of Wight-Nansemond Health District. The cities of Norfolk and Portsmouth have signified their desire to cooperate with this office. Temporary headquarters are at the office of Dr. Josiah Leake in the New Kirn Building at Portsmouth.

Dr. H. M. Kelso has been named as Assistant Director of Rural Health for the Southwest Health District with offices at Abingdon. This appointment becomes effective November 1, 1940.

Dr. Henry G. Steinmetz has been appointed Health Officer to succeed Dr. Kelso in Pulaski County, effective November 1. Dr. Steinmetz has been Assistant Health Officer of Arlington County.

Dr. W. W. Griggs, formerly in charge of the Dickenson-Wise Health District, Dr. J. G. McNiel, Health Officer of Montgomery County, Dr. William Y. Garrett, formerly Health Officer of Northampton County, and Dr. P. W. Bowden, formerly acting Health Officer in charge of venereal disease control in the Newport News area, are now taking special courses during the academic year 1940-1941 at the Johns Hopkins School of Public Health. Upon completion of their courses they will be re-assigned to health officer duties by the State Department of Health.

Medical College of Virginia News.

A local chapter of Alpha Omega Alpha, national honorary medical fraternity, will be organized at the college, the installation to be held on December 6, with national officers present.

The General Education Board has made a grant of $3,000.00 to the college for research in genetics which is being carried on by Dr. Roscoe D. Hughes of the school of pharmacy.

Dr. William T. Sanger, President, and Dr. Lee E. Sutton, Jr., Dean of the School of Medicine, attended the annual meeting of the Association of American Medical Colleges, October 28-30, in Ann Arbor, Michigan.

The college began its radio series for the session 1940-41 on the night of October 19 with President Sanger speaking. The program for the entire series is given below:

WRVA—Saturday Night

1. October 19—Dr. William T. Sanger—Medical Interview.
2. October 26—Dean Harry Bear—Dental Interview.
3. November 2—Dean Wortley F. Rudd—Pharmacy Interview.

XUM

4. November 9—Dean E. Louise Grant—Nursing Interview.
5. November 16—Dr. J. H. Scherer—Medical Technology Interview.
6. November 23—Miss Kathryn Heitshu—Dietetic Interview.
7. November 30—Mrs. Eloise Robins—Medical Social Service Interview.
8. December 7—"Exodus"—A Dramatization.
9. December 14—Dr. Harvey B. Haag—Research in the Department of Pharmacology.
10. December 21—Dr. Frank L. Apperly—Research in the Department of Pathology.
11. December 28—Dr. J. Frank Hall—Research in the Dental School.
12. January 4—Dr. Clair R. Spealman—Research in Physiology.
13. January 11—Dr. Sumter S. Arnim—Research in Dental Caries.

Founders' Day, Thursday, December 5, will mark the dedication of the new college hospital. The program will begin at 12:00 noon and last about an hour. Beginning at two o'clock in the afternoon the hospital will be open for inspection until ten o'clock that night. There will be ample guides and arrangements for handling the alumni and interested friends. As the hospital will not then be occupied by patients, but will be fully equipped, there will be an especially good opportunity to make a complete inspection. It embodies a number of new features in hospital construction and equipment and provides several new departments such as neuropsychiatry, contagious diseases, enlarged physical therapy quarters, and many superior arrangements for teaching.

Patients will be moved from the Dooley and Memorial Hospitals to the new unit by easy stages as soon after dedication as possible.

News from the University of Virginia, School of Medicine.

Dr. Vincent W. Archer addressed the Danville Academy of Medicine and Pittsylvania County Medical Society, meeting in Danville, Virginia, on September 10. His subject was Bleeding From the Gastro-Intestinal Tract.

At the annual meeting of the American Roentgen-Ray Society in Boston on October 1 to 4, Dr. Archer gave two instruction courses: 1. Country Diseases in the Chest; 2. Osteomyelitis.

Dr. W. W. Waddell, Jr., participated in the Jefferson County Postgraduate Seminar held in Birmingham, Alabama, on September 17, at which time he discussed Spontaneous Hypoglycemia in Childhood. At the meeting of the Alabama State Pediatric Society in Birmingham on September 18, he spoke on Vitamin K in Hemorrhage of the Newborn.

On October 2, Dr. David C. Wilson spoke before the Southwestern Virginia Medical Society, meeting in Marion, Virginia. His subject was Recent Drugs in Neuro-Psychiatry.

Dr. I. S. Ravdin, George Leib Harrison Professor of Surgery at the School of Medicine of the University of Pennsylvania, gave the first Alpha Omega Alpha Lecture on October 4. He discussed Some Nutritional Problems of the Surgical Patient.

The first Annual Phi Beta Pi Lecture was given by Dr. James B. Murphy of the Rockefeller Institute for Medical Research on October 14, when he spoke on The Present Status of Cancer Research.

News from the Jefferson Medical College of Philadelphia.

The 116th annual session was inaugurated September 18, 1940, Mr. Robert P. Hooper, president of the Board of Trustees, presiding. The introductory lecture was delivered by Dr. Hobart A. Reimann, Magee Professor of Practice of Medicine and Clinical Medicine, on "Education of the Medical Student".

The total enrollment is 513. Of this number, 147 are new students, 133 admissions to the first-year class, and fourteen admissions to the third-year class.

The members of the first-year class were prepared for medical study in seventy-five different institutions; all having completed four years of college work and having received a bachelor's degree before being admitted to the medical course. Geographically, twenty-nine states, insular possessions and foreign countries are represented, as follows: Pennsylvania, New Jersey, North Carolina, Ohio, West Virginia, Delaware, Massachusetts, Rhode Island, Indiana, Connecticut, South Carolina, New York, Maine, Maryland, California, Washington, Alabama, Tennessee, Missouri, Iowa, Michigan, New Hampshire, Georgia, Idaho, Kansas, Kentucky, Mississippi, Montana, Oregon, Puerto Rico, the Territory of Hawaii, and the countries of Brazil, Korea and Iran.

News from Duke University School of Medicine.

On October 3, the School of Medicine and School of Nursing began their autumn quarters, with an

enrollment of 262 students in the former, and 60 students in the latter.

On October 15, Dr. M. V. Ziegler, Senior Surgeon of the United States Public Health Service, talked to the students at the daily clinic on "Opportunities in the Public Health Service".

The seventh annual Postgraduate Symposium is being held at Duke Hospital October 31, November 1 and 2. The subject is Diseases of Metabolism and Diseases of the Blood Forming Organs. The following are participating in the program: Dr. Cyrus C. Sturgis, Professor of Medicine, University of Michigan School of Medicine; Dr. Louis K. Diamond, Associate in Pediatrics, Harvard Medical School; Dr. Claude E. Forkner, Assistant Professor of Clinical Medicine, Cornell University Medical College; Dr. Elliott P. Joslin, Professor of Clinical Medicine, Emeritus, Harvard Medical School; Dr. William Dameshek, Assistant Professor of Medicine, Tufts College Medical School; Dr. Fuller Albright, Assistant Professor of Medicine, Harvard Medical School; Dr. Eugene F. Du Bois, Professor of Medicine, Cornell University Medical College; Dr. Frank H. Lahey, Director, The Lahey Clinic, Boston, Mass.; Dr. Allen O. Whipple, Valentine Mott, Professor of Surgery, College of Physicians and Surgeons; Dr. Leland S. McKittrick, Instructor in Surgery, Harvard Medical School; Dr. George R. Minot, Professor of Medicine, Harvard Medical School; Dr. Frank A. Evans, Physician-in-Chief, Western Pennsylvania Hospital, Pittsburgh; Dr. Alexis F. Hartmann, Professor of Pediatrics, Washington University School of Medicine, and Dr. Russell M. Wilder, Professor of Medicine, The Mayo Foundation for Medical Education and Research, University of Minnesota.

Married.

Dr. William Province McGuire, Winchester, and Miss Dorothy Elizabeth Robinson, Glen Rock, N. J., October 19th. Dr. McGuire is an alumnus of the University of Virginia.

Dr. William Allen Johns, Richmond, and Miss Logan Phinizy, Augusta, Ga., October 5th. Dr. Johns is a graduate of the Department of Medicine, University of Virginia.

Dr. Herbert T. Wagner, Richmond, and Miss Rebecca Lewis, York, Pa., October 5th. Dr. Wagner is a graduate of the University of Indiana and is now executive director of Stuart Circle Hospital, Richmond.

Dr. James W. Tankard, Hilton Village, and Miss Eileen Looney, Jenkins, Ky., in August.

Dr. Jack Graham Webb, Richmond, and Miss Frances Skelton, Hartwell, Ga., September 21st. Dr. Webb graduated from the Medical College of Virginia in 1940 and is now at the City Hospital in Louisville.

Dr. Randolph Harrison Hoge and Mrs. Katherine Booker Wales, both of Richmond, October 19.

Dr. T. Brent Wayman,

Formerly of Kilmarnock this State, who graduated from Johns Hopkins University in 1932, has returned to Virginia and located at 601 Medical Arts Building, Richmond, where he will limit his work to the practice of urology. He interned at Johns Hopkins Hospital, later doing urological work under Dr. Frank Hinman of San Francisco. He was then engaged in private practice and associated with the Cincinnati School of Medicine for four years before returning to his native State.

Clinic to be Held at University of Virginia.

The Postgraduate Clinic will be held at the University of Virginia Hospital from December 10 to 13 inclusively. The first two days will be given to lectures on Otolaryngology and the last two on Ophthalmology. The program has not been completed but will be mailed around November 1.

Dr. Marvin Jones and Dr. Andrew Eggston, both of New York City, Dr. J. M. Robb of Detroit, and Dr. D. H. Massie of the University of Virginia, will be the lecturers on the ear, nose, and throat. Dr. Frank Walsh of Baltimore and Dr. Harry Gradle of Chicago will be among those speaking on the eye.

Dr. Robert E. Moran of Washington will talk on plastic surgery of the nose and ear and also of the eye and face, showing lantern slides and perhaps some movies.

Commander J. R. Poppen, from the Bureau of Aeronautics, will give an informal discussion on "The Relationship of the Ear to Flight" at a 6:30 dinner at Farmington on Wednesday, December 11.

Dr. George B. Craddock,

Recently resident in medicine in the Medical College of Virginia Hospitals, has located in Lynchburg, with offices in Allied Arts Building, where he will be engaged in the practice of internal medicine.

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Cancer Clinics.

The Cancer Committee of the Medical Society of Virginia has recently certified two Clinics for the diagnosis and treatment of indigent cancer patients under the funds collected by the Virginia Cancer Foundation. The complete list of certificated Clinics is as follows:

Elizabeth Buxton Hospital Tumor Clinic, Newport News,
Diagnostic Tumor Clinic, Norfolk,
Jefferson Hospital Tumor Clinic, Roanoke,
McIntire Tumor Clinic, University of Virginia, Charlottesville,
Medical College of Virginia Tumor Clinic, Richmond,
Petersburg Tumor Clinic, Petersburg.

Mental Hygiene Society of Virginia.

The annual meeting of the Society was held in Richmond, October 31st, under the presidency of Dr. O. B. Darden of this city. At the afternoon session, the general subject under discussion was "The Adolescent", with Dr. Frank Curran of Bellevue Hospital, New York City, and Dr. Joseph E. Barrett of the Southwestern State Hospital, Marion, as the principal speakers. At the evening session, Dr. Lawrence Kolb, Assistant Surgeon General, Mental Hygiene Division, United States Public Health Service, was the guest speaker. Both sessions were well attended and aroused much interest.

Dr. J. Shelton Horsley,

Richmond, attended the Gulf Coast Clinical Society meeting on October 18, at Gulfport, Miss., where he read a paper on cancer of the stomach and also led a round table discussion on surgery. He later attended the meeting of the American College of Surgeons in Chicago, where he participated in a panel discussion on gastric hemorrhage.

Vitamin-Free Foods for Research.

A recent announcement by the Research Laboratories of the S. M. A. Corporation reveals that they are now in a position to provide vitamin-free casein and other vitamin-free foods for experimental purposes to researchers who have previously been obliged to manufacture these items for private use.

For many years the S. M. A. Corporation has been producing these foods exclusively for use in their laboratories. Now, with the expansion of their own facilities and the realization of the convenience to others engaged in laboratory work, this offer is made to provide vitamin-free diets at an exceptionally reasonable cost. Quantities of one, five, ten or one hundred pounds or more may be ordered directly from the Research Laboratories, S. M. A. Corporation, Chagrin Falls, Ohio.

The Civil Service Commission

Announces that enough applications have been received to meet the prospective need for temporary and part-time civilian medical officers in connection with the Army expansion. However, there is an urgent need for medical officers and senior and associate medical officers to fill permanent positions in other agencies. Applications will be received until further notice. The positions pay from $3,200 to $4,600 a year. Fourteen specialized branches of medicine are included. There is also an urgent need to fill junior medical officer positions at $2,000 a year at St. Elizabeths Hospital, Washington, D. C.

Full information and application forms for these examinations may be obtained at the office of the Secretary, Board of U. S. Civil Service Examiners at any first- or second-class post office, or from the U. S. Civil Service Commission, Washington, D. C., or from any of the Commission's district offices.

Dr. Nathan P. Fitts,

Class of '29, Medical College of Virginia, who has recently spent some time at Flint, Mich., has returned to Swan Quarter, N. C., where he is engaged in general practice.

The American Association of Obstetricians, Gynecologist and Abdominal Surgeons

Held its annual meeting at Excelsior Springs, Missouri, September 26-28, under the presidency of Dr. James R. McCord of Atlanta, Ga. At the close of the meeting, Dr. Frederick H. Falls of Chicago took office as president, and the following were elected for the ensuing year: President-elect, Dr. Grandison D. Royston, St. Louis, Mo.; vice-president, Dr. Robert D. Mussey, Rochester, Minn.; secretary, Dr. James R. Bloss, Huntington, W. Va.; and treasurer, Dr. Lewis Smead, Toledo, Ohio. The two latter were re-elected.

The Association will hold a clinical meeting in Chicago in March, but voted to have the 1941 annual meeting at Hot Springs, Va., next September.

American Red Cross.

Roll call for 1941 memberships has been held in many places. Every one who enrolls helps maintain Red Cross services in his own community and nation. Be sure to answer the call for membership when it comes.

Dr. and Mrs. S. E. Massey

And daughter, Caroline, after spending the summer in Bramwell, W. Va., have returned to their home in Lakeland, Fla., for the winter.

Dr. C. C. Coleman

Was recently elected president of the William and Mary Club of Richmond.

Portrait of Dr. Tucker Presented Sanatorium.

The ex-residents of Tucker Sanatorium presented a portrait of Dr. Beverley R. Tucker to the Sanatorium on the afternoon of September 28th, a number of friends being present for the exercises. The presentation for the ex-residents was made by Dr. Thomas G. Hardy of Farmville, first resident, and was accepted for the Sanatorium by Dr. Howard R. Masters. Dr. James Asa Shield presided. Other ex-residents present were: Dr. A. M. Duval of Washington, D. C.; Dr. G. Sydnor Terry of Scarsdale, N. Y.; Dr. J. Warren Hundley of Philadelphia; Dr. J. M. Mewborn of Farmville, N. C.; Dr. Thomas B. Payne of Fredericksburg; Dr. Frank H. Redwood of Norfolk; Dr. Meade Edmunds of Petersburg; and Drs. Finley Gayle, R. H. Courtney, T. Dewey Davis, O. L. Hite, and Rex Blankinship, all of Richmond.

Dr. E. V. Richardson,

Class of '30, Medical College of Virginia, recently of Leona Mines, has located at Marion, where he will be engaged in general practice and surgery. Just before going to Marion, he underwent an operation for appendicitis.

Dr. H. H. Hurt,

Lynchburg, as a member of the Virginia National Guard, has been inducted into the U. S. Army Service, and is attached to the 246th Coast Artillery, stationed at Fort Story, Va.

Dr. Julien H. Meyer,

Class of '37, Medical College of Virginia, who recently completed a residency at St. Joseph's Hospital, Baltimore, Md., has located in Roanoke, with offices in Boxley Building. His practice will be limited to gynecology, obstetrics and abdominal surgery.

Dr. J. J. Board,

Altavista, oldest practicing physician in Campbell County, is in a Lynchburg Hospital, suffering from a fracture of the ankle, caused by a fall down steps.

Have You A Hobby?

Hobbies are becoming more and more an interesting feature at meetings of the doctors. Have you one? If so, and you would be interested in exhibiting it at our annual meeting next Fall, write the Society office about it promptly and the chairman of exhibits will see what can be done about such a display if sufficient interest is shown.

Blindness from Industrial Occupations.

There are in the United States today close to 8,000 persons who have been blinded by the eye hazards of industrial occupations and more than 80,000 persons who have lost the sight of one eye as a result of these hazards. To this total there are added each year at least 75 persons who lose the sight of both eyes and 2,000 persons who lose the sight of one eye because of industrial or occupational hazards. How such accidents in industry may be prevented is portrayed in a sound slide film which has been prepared by the National Society for the Prevention of Blindness, 50 West 50th Street, New York City. If interested, ask them about it.

New Books.

The following are recent acquisitions to the Library of the Medical College of Virginia and are available to our readers, the only cost being return postage:

Adler, F. H.—Clinical physiology of the eye.
Alvarez, W. C.—An introduction to gastro-enterology.
Bamford, F.—Poisons, their isolation and identification.
Bashford, H.—Doctors in shirt sleeves.
Blumer, G.—The therapeutics of internal diseases.
British Medical Journal—War wounds and air raid casualties.
Chavasse, F. B.—Worth's squint.
Coe, U. C.—Frontier doctor.
Dargeon, H. W.—Cancer in childhood.
de Kruif, P.—Health is wealth.
Dunham, G. C.—Military preventive medicine.
Eilmann, H. J.—Medicolegal and industrial toxicology, etc.
Fulton, J. F. et als.—The hypothalamus.
Gesell, A.—The first five years of life.
Gill, R. C.—White water and black magic.
Gladstone, R. J. & Wakeley, C. P. G.—The pineal organ.
Harvey, E. N.—Living light.
Henderson, D. K.—Psychopathic states.
Hill, H.—Histamine and insulin treatment of schizophrenia.
Kaplan, I. I.—Radiation therapy.
Koby, F.—Slit-lamp microscopy of the living eye.
Langworthy, Kolb and Lewis—Physiology of micturition.

XUM

McCarthy, L.—Diagnosis and treatment of diseases of the hair.
McNally, W. D.—Medical jurisprudence and toxicology.
Maingot, R.—Post-graduate surgery. 3v.

Doctor Needed.

Request has been received from Bracey, in Mecklenburg County, this State, for a physician for general work, due to the fact that the physician there for the past fifty years died recently. For information, address Postmaster at that place. (*Adv.*)

For Sale—

Leitz microscope in first class condition. Price reasonable. Address "Micro", care VIRGINIA MEDICAL MONTHLY, 1200 East Clay Street, Richmond, Va. (*Adv.*)

For Sale—

Drug store, established and operated for years by physician in connection with his practice. Doctor now deceased, but store is being operated and doing good business. Located in town of 800, fifty miles from Richmond. Wonderful opening for doctor to operate store and practice. Store is modern and well arranged for doctor's office in store. Requires $1,000 cash, balance monthly. Address "Drug Store", care this JOURNAL. (*Adv.*)

Obituary Record

Dr. Harry Preston Gibson,

Prominent Leesburg physician, died at his home October 2, after a long illness. He was a native of Loudoun County and fifty-five years of age. After completing his academic work at the University of North Carolina at Chapel Hill, he studied medicine at the University of the South at Sewanee, Tenn., from which he received his degree in medicine in 1909. Shortly thereafter, he located at Leesburg where he had practiced his profession for thirty-one years. He was a member of the Loudoun County Medical Society, the Medical Society of Virginia, and the American Medical Association. His wife, daughter, sister and one brother, Dr. John A. Gibson of Leesburg, survive him.

Dr. Thomas Benjamin Smith,

Well-known physician of Bracey, died October 15th after a week's illness. He was eighty-one years of age and a graduate of the Jefferson Medical College, Philadelphia, in 1881. Dr. Smith was for some time a member of the Medical Society of Virginia. His wife and a daughter survive him.

Dr. George Mason Magruder,

Prominent surgeon, died in Charlottesville on October 10th following a short illness. He was a native of Albemarle County and seventy-seven years of age. Dr. Magruder graduated in medicine from the University of Virginia in 1884, shortly after which he became identified with United States Public Health Service. At the time of his retirement from service, he had been promoted to the rank of Senior Surgeon.

Resolutions on Death of Dr. J. S. Smith.

The Montgomery County Medical Society, in session on September 24th, adopted the following resolutions on the death of Dr. J. S. Smith:

In the passing of the President of our Society, Dr. J. S. Smith, on July 23, 1940, the Montgomery County Medical Society desires to recognize a great loss to our Society, and to the medical profession throughout the State of Virginia.

Dr. Smith was born in the year 1862, received his medical education at Baltimore, Md., and passed the State Board in Virginia in the same year of graduation, 1887. Following his graduation, he located at Radford, Virginia, where he engaged in the practice of medicine for a period of fifty-three years. During this period of time he enjoyed a very extensive practice, and made many friends among his acquaintances in this section, not only among the doctors but among his vast clientele of patients. While Dr. Smith did not spend as much time in doing scientific work as some doctors, we doubt if there is another doctor in the State of Virginia who has devoted his time and energy as assiduously to the attention of human illnesses as did our late President of the Montgomery County Medical Society.

In recognition of his valuable services to mankind and the medical profession, we desire to put on record a tribute of respect in the form of these resolutions:

WHEREAS, a wise Providence has seen fit to remove from our midst our beloved and faithful friend and colleague, Dr. J. S. Smith.

THEREFORE BE IT RESOLVED, that we, the members of the Montgomery County Medical Society, make record of his passing with great sorrow, and at the same time extend our sincerest sympathy to his family and friends.

We also desire that a copy of these resolutions be spread upon the minutes of this Society, a copy sent to the members of his family, and a copy to the VIRGINIA MEDICAL MONTHLY.

J. J. GIESEN,
H. D. FITZPATRICK,
J. LOUIS EARLY,
Committee.